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Address

SOME RECENT RHINOLOGIC ACHIEVEMENTS AND TENDENCIES.

ADDRESS OF CHAIRMAN OF SECTION ON LARYNGOLOGY AND OTOLOGY AT THE FIFTY-SEVENTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, AT BOSTON, JUNE, 1906.

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CHICAGO.

Articles on rhinologic subjects are being produced in such numbers and are so widely scattered in the medical journals of all nations that much that is of higher value than what has been noted in this paper has doubtless escaped my notice, and this review necessarily includes only a portion of the many subjects that interest rhinologists to-day.

THE EXTERNAL NOSE—ACNE ROSACEA.

F. Bloebaum[1] describes a radical treatment by means of the galvanocautery for rhinophyma, that aggravated form of acne rosacea in which the nose is disfigured by lobes and tuberosities of hypertrophied integument. He employs pricking of the skin and slitting of ectatic vessels with the galvanocautery needle, in diffuse cases going over the whole surface of the nose in this manner. Hypertrophic protuberances are removed with the hot wire snare, a platino-iridium knife and a flat burner. The cosmetic effect is perfect, the nose becoming smooth and of normal color.

In this connection I wish to call attention to a method of my own for dealing with disfiguring ectatic branching veinlets on the nose in less marked cases of acne rosacea. These vessels can be completely obliterated by means of a platino-iridium needle attached to the positive pole of a galvanic current of about 3 milliamperes, the needle being inserted into the branches of the vessel at close intervals along their course from their periphery to its main trunk, which is finally also punctured. The vein will then be found to be blanched and will remain permanently closed if the process has been thorough enough. The positive needle does not cauterize, so that the procedure leaves no perceptible trace on the skin even immediately after the treatment. The usual practice among dermatologists is to use the negative pole for the needle. This cauterizes and makes a loose clot in the vessel so that it usually reopens. Reasoning from analogy in the treatment of aneurisms where the positive pole is used to form a firm coagulum, I employed it for the cases mentioned with good results.

THE COSMETIC USE OF PARAFFIN.

Paraffin injections under the skin of the nose for cosmetic effects have unfortunately led to a number of cases of sudden monocular blindness. These group themselves as shown by W. Uhthoff[2] and Rohmer[3] in two classes, both characterized by the rapid occurrence of blindness, but differing in their symptoms. The first group is due to plugging of the arteria centralis retinæ by a paraffin embolus which has passed through the pulmonary circulation and the accident is accompanied by but slight or no inflammatory reaction and by the typical ophthalmoscopic changes of embolism of the retinal artery. In the second group the vessels involved are veins, a thrombosis occurring in the vena ophthalmica inferior and extending to the vena centralis retinæ. In the second class of cases there is exophthalmos, diminished mobility of the globe, edema of the lids, conjunctival chemosis, and intraocular hemorrhage.

The danger of such embolic accidents will always cling to paraffin injections. The melting point for the paraffin used in several cases was around 110 F., a melting point very commonly recommended. There seems to be no physical reason why the needle should not in rare instances enter the lumen of a minute veinlet and force a particle of even semisolid cold paraffin directly into the circulation or else the pressure employed might drive a bit of paraffin through a rent in the vessel wall. Hard paraffin of an even higher melting point, 122 F. (50 C.), would, of course, lessen the danger of embolic accidents, but it seems proper both for the sake of the operator and the patient that the latter should be told of the remote possibility of blindness in one eye as a consequence of the operation.

Eschweiler[4] presents an interesting description of the histology of a piece of tissue containing paraffin which had been injected into the nose of a young woman a year before. His conclusions confirm the usual opinion that in time all of the paraffin is absorbed and replaced by connective tissue.

THE VIBRISSÆ.

Proceeding into the nasal interior, I wish to call attention to the common statement recently again emphasized that the hairs of the nasal vestibule, the vibrissæ, are of great functional importance as catchers of dust from the inspired air. If this were the case it seems to me that all human beings from birth would be provided with these hairs, while as a matter of fact they are absent or hardly noticeably present in most children and in many women. These individuals certainly need protection against dust in their noses as well as men who usually have a decided growth of hair in the nostrils. In my experience the coarseness and abundance of these hairs coincides with the growth of hair on the face and they are thickest and most numerous in well-bearded men in whom they often create a positive obstruction to the nasal respiration so that they need clipping away.

1. Muench. med. Wochft., vol. lii 1904.

2. Berl. klin. Wochenschrift, No. 47, 1905.

3. Annal. d'oculist, September, 1903.

4. Fraenkel's Archiv. für Lar., 1905, p. 1.

HISTOLOGY OF THE NASAL MUCOSA.

The histology of the secreting mechanism of the nose is most ably considered by Goodale,[5] and his research has disclosed the important fact that in vasomotor rhinitis there is an increase in both the number and size of the canaliculi of the basement membrane of the nasal mucosa and also in the perviousness of the columnar epithelium resting on it. Goodale thinks that this accounts in part for the profuse watery discharge, either seasonal or perennial, that characterizes vasomotor rhinitis, because the largest part of the moisture of the nose normally comes through these canaliculi and the interspaces in the columnar epithelium. Goodale found the canaliculi absent in atrophic rhinitis.

HOT AIR TREATMENT OF CHRONIC RHINITIS.

The group of conditions called vasomotor rhinitis, spasmodic rhinitis and nasal hydrorrhea, all marked by attacks of sneezing, sudden distention of turbinals and free watery secretion, is most resistant to treatment and it is a satisfaction to learn that Lermoyez and Mahu[6] have had brilliant results from the use of a stream of hot air applied to the mucosa at the high temperatures of 70 to 90 degrees Centigrade (158 to 194 F.). The result of the treatment on an inferior turbinate is at first reddening and retraction, then a free watery discharge lasting for several minutes to hours. The original must be consulted for the technic. The authors feel justified in regarding the hot air treatment as a specific for nasal hydrorrhea.

HAY FEVER.

Hay fever, whose symptoms are analogous to those of vasomotor rhinitis, is the subject of another article by Dunbar,[7] written in his usual scholarly and clear manner. A great deal of attention is devoted to hay fever as it occurs in America, and Dunbar states that persons subject to the ragweed and goldenrod pollentoxin of our late summer are usually immune to the vernal type of hay fever most common in Germany and due to the pollen of the grasses, wheat and rye especially. Some unfortunates, however, are subject to intoxication with both kinds of pollen and suffer all summer. He advises the use of pollentoxin as a diagnostic test of hay fever. Dunbar thinks that where there is local irritation and failure in the use of his powdered pollantin the poor result is due to the insufflation of excessive doses. Dr. Lewis Somers[8] found that the powdered pollantin acted as an irritant and had little effect, while the results from the liquid form of the serum were excellent. Dunbar's objection to the fluid type of the remedy is its instability, as it is liable to decompose, in spite of the carbolic acid it contains, if it be contaminated. Of 505 of Dunbar's patients, 299 used pollantin with complete success, 143 were helped, on 63 it had no effect. A singular phenomenon is the fact that, though normal persons are immune to pollentoxin, their blood serum has no antitoxic effect in neutralizing the poison of hay fever. R. Mohr,[9] judging from experience with 501 cases of hay fever, feels certain that pollentoxin is the cause of the disease and thinks the disposition to the affection incurable.

Experience with the new ragweed and goldenrod pollantin designed for the autumnal form of hay fever has been rather disappointing in America, though to many the remedy has seemed effective in a proportion of cases. It certainly does not begin to be for hay fever what antitoxin is for diphtheria. It will take a trial of several years to decide definitely the value of pollantin.

Alfred Denker[10] and Urbantschtisch[11] have found that massage of the nasal interior markedly diminishes the tendency to hay fever. Denker uses a stiff probe covered with cotton dipped in europhen oil, while Urbantschtisch uses an elastic steel probe moved by an electric motor. Denker massages even during the attacks. Mohr had no result from intranasal massage, and, to judge from my own lack of success with it in vasomotor rhinitis, I think that little more than temporary damage to the epithelium will be accomplished with it in hay fever. I think, however, that it may be worthy a trial.

VACUUM THERAPY.

R. Sondermann[12] employs a rubber bulb connected to a mask placed air tight over the nose in order to produce a negative pressure in the nasal cavity and suck secretions from it and the accessory sinuses. In order to shut off the oropharynx he has the patient say "ee" or inspire through pointed lips.

Gustav Spiess,[13] of Frankfurt, describes a suction pump operated by an electric motor for the same purpose as Sondermann's mask. Both authors emphasize the advantage of this vacuum method for the diagnosis and treatment of disease of the accessory sinuses, secretion being aspirated from these cavities, provided their orifices be not occluded by swelling or polypi. They also had marked success in atrophic rhinitis (ozena), the free secretion following the rarefication of air in the nose, loosening the crusts, while such sinuses as were affected by empyema were emptied of their contents. In the suppurative rhinitis of children Sondermann obtained so much more secretion with his suction mask than he judged could come from the nasal cavity alone that he was led to think that the sinuses must furnish a large proportion of the discharge and that empyema of the sinuses must be more common in childhood than is commonly supposed. He also found empyema of the sinuses in all of his ozena cases. Intumescent states of the nasal mucosa were much improved by the suction treatment, deturgescence of vessels following on a temporary distention. It is possible that the vacuum methods of Sondermann and Spiess may prove of great value to rhinology.

PARAFFIN FOR ATROPHIC RHINITIS.

Fliess,[14] Zaalberg, Broeckhart and Burger[15] have been following Moure and Brindel[16] in employing paraffin injections into the turbinated bodies and also the septum for the relief of atrophic rhinitis (ozena). A review of these writings leads to the conclusion that the method is only useful in cases where the atrophy is slight or moderate, and that it is not only useless but harmful where the turbinated bodies are much shrunken. Burger states that a possible complication is thrombophlebitis of the facial vein, which may persist for months and can not be prevented. Other unpleasant effects are swelling of the cheek and eyelids on the side operated on. In 20 out of 60 cases Zaalberg had cessation of the fetor and crust formation, and regards this as an argument

5. Annals of Otology, March, 1905.
6. Revue Hebd. de Laryng., March 4, 1905.
7. Berl. klin. Wochft., Nos. 26, 28, 29, 1905.
8. Medicine, March, 1904.
9. Münch. med. Wochft., p. 1585, 1905.
10. Münch. med. Wochft., 1905, No. 19.
11. Münch. med. Wochft., 22, 1904.
12. Fraenkel's Archiv für Laryng., vol. xvii, p. 425. also Münch med. Wochft., No. 1, 1905, and page 1440, 1905.
13. Archiv für Laryng., 1905, p. 179.
14. Berl. klin. Wochft., 1904, p. 252.
15. Internat. Centralb. für Laryng., 1905.
16. Le Bulletin medical, 23, vol. v, 1900.

against Gruenwald's theory that ozena is nearly always due to sinus suppuration. The melting point of the paraffin used by Fliess and Zaniberg was high, 118 to 125 F.

For my part I have never felt the need of paraffin injections in ozena, for I have found the disease not difficult to control by local treatment in nearly all cases. I have the patient employ irrigations with my hard rubber irrigating tube, which emits minute jets at a right angle to its surface and can be passed back and forth and rotated in the nasopharynx and nose while it washes away secretion. Where needed the irrigation is preceded by the use of a Gottstein tampon for some hours to soften scabs. After washing I have the patient apply freely to the nasal interior and nasopharynx by means of a long applicator and cotton swab an ointment of lanolin with a little vaselin and 2 per cent. of salicylic acid. This thick unguent makes it impossible for crusts to adhere and it remains in contact much longer than thin oils do. In addition I massage the mucosa with a 50 per cent. fresh solution of argyrol. Under this treatment I have always seen rapid improvement, cessation of the fetor and a great lessening of the crust formation and in several instances in the course of months to a year a complete relief from all of the symptoms. Considering what can be accomplished by this local treatment, I can see no need of the painful and risky paraffin injections.

THE GALVANOCAUTERY.

In recent times the use of the galvanocautery for the reduction of obstructing swellings of the inferior turbinated body has been denounced as an antiquated procedure that did much harm and should be wholly discarded for the more radical cutting methods. I think that disappointing attempts to reduce true hypertrophies of the lower turbinated body with the galvanocautery and excessive reaction with chronic scabbing following extensive surface cauterizations have influenced those who would thus wholly discard a most valuable and proven means of treatment if properly used for the proper condition. I refer to linear cauterization of purely vascular distention of the turbinal, either transitory or permanent and with but little or no hyperplasia of tissue. Even a partial resection of the turbinate is out of all proportion to the dignity of these intumescences and in almost all cases I have found that a single linear cauterization, horizontally along the whole length of the turbinate down to the bone permanently relieved the nasal obstruction or at least prevented its recurrence for years. It is quite necessary, however, to use a very heavy platinum wire, where there is current enough No. 20 gauge, as light wire cools too soon and does not create enough of a scar to bind down the mucosa to the bone. I have never seen prolonged scabbing or excessive reaction after this treatment. I should not have referred to so old a measure as the cautery were it not that its improper use has brought this valuable agent into undeserved disrepute. Rindfleisch,[17] in reporting 627 conchotomics agrees with what I have stated in favor of linear cauterization in vasomotor rhinitis.

THE SUBMUCOUS RESECTION OF DEFLECTIONS OF THE SEPTUM.

Imported ways of doing the operation, the Hajek-Menzel and Killian methods with modifications, have been largely adopted in this country, and I think to the injury of the cause of the submucous resection, for the tendency of these operative modes is to transform it from its true nature of an operation of deftness, neatness and painstaking deliberate skill, such as I have advocated from my first publications, into one whose aim is to finish the work quickly at the expense of thoroughness and with the use of a certain amount of blind force. The instrumentarium of these methods corresponds to this idea, and the elevators employed are made large and blunt or chisel-edged and are intended to forcibly push off the mucous covering of the septum rather than to gently undermine it or dissect it off from adherent places, as should be done if traumatism is to be minimized, perforations avoided and the denudation to be made sufficiently extensive. The need of keen cutting is, in fact, quite ignored in these methods and their outfits include none of the long, thin, rounded, razor-edged blades absolutely needed to dissect up the mucosa-perichondrium and periosteum where it adheres to cartilage and bone. In fact, the advocates of these methods speak of the elevation of the mucosa as a simple matter to be accomplished in a few minutes in all cases, a most misleading description and one sure to lead novices in the operation into difficulty, for in many cases if the separation of the mucous membrane is to be done thoroughly enough to expose all of the deviation it will prove tedious and demand a high degree of skill, and the skeleton of the septum will in large part have to be dissected out of its coverings. An important point is the following: In a number of cases, especially in the young, the mucous membrane is not as usual firmly attached to the underlying perichondrium, but is quite freely movable on it, and in such instances the blunt separator, instead of conducting the separation next to the cartilage, enters between the perichondrium and mucous membrane, uplifting the latter with great facility over wide areas, while leaving the perichondrium still clinging to the cartilage and destined to be sacrificed with it when it is resected. With the loss of the perichondrium, of course, all hope of a regeneration of the cartilage is gone.

A serious objection to the operative methods mentioned and their modifications is the location of the first incision in the mucosa in the foremost part of the septum where there is not sufficient room for a long cut because of the near approach to each other in this locality of the dorsum and the floor of the nose. Further back a long vertical incision can be made, and, though this necessitates in most cases the making of an anterior L-shaped flap as in my method, the great length of the cut made gives far better access to the least accessible deep-seated bony part of the deflections than does the buttonhole type of incision in front, which also entails the sacrifice of a portion of straight septum before one can reach deflections which begin farther back in the nose and which compels the operator to resect them in a long bag of mucous membrane with a narrow opening which makes vision difficult and hinders the manipulation of instruments.

Dictated by the fear of perforations the idea is also advocated by some that these may be avoided by the elevation of the mucosa with blunt instruments, while sharp or dulled thin ones are supposed to be more liable to cut through the covering of the other side of the septum. This is the reverse of true, for the blunt instruments require force in their employment and are hence liable to plunge through the frail mucosa where at all adherent. The operator who boldly trusts to his skill with sharp or thin dulled blades is far less liable to per-

17. Bericht ueber 627 Conchotomien, Monatsch. für Ohrenheilkunde, 1905, Nos. 3, 4.

forate than the timid one who tries to forcibly work his way with a thick blunt elevator.

As a step following the resection of the cartilage and perpendicular plate a writer in a recent article advocates the fracturing of the vomer as a part of the submucous resection as he does it.

He uses a heavy forceps similar to the Adams or Asch, a blade being introduced into either nostril outside the mucous membrane, the vomer being seized and with a twisting motion fractured from its attachment to the superior maxillæ. Those of us who have worked at the submucous resection from its earliest beginnings in this country and have followed its development view with regret this needless attempt to introduce into it the primitive and crude methods to avoid which the window resection was created as a method of precision and least injury. We are always ready to welcome any real improvement of the technic of the operation, but we must express our emphatic disapproval of a reversion to the rougher and uncertain fracturing methods which we have long since discarded as unfit and the use of which in the submucous resection shows that their employer has no proper conception of what the method can accomplish without the least employment of blind force, for it is not difficult to cut away cleanly all of the deflected bone, including the superior maxillary crest and vomer with proper cutting forceps and with the deviation in plain sight if the mucous membrane cuts be so made as to give proper access to the deeper parts of the deflection. This is, of course, not the case where the Hajek or Killian buttonhole incision at the front of the septum is employed.

Some authors in America have of late referred to the submucous resection in general as Killian's operation. Professor Killian should receive credit for having developed his instrumentarium and mode of operation only and it is only proper to speak of Killian's way of performing the submucous resection, not to name the whole method after him. The essence and principle of the operation is the radical resection of the cartilage and the bone, and the one to first have the boldness to do this was Krieg, of Stuttgart, in 1886. He gave the operation the name of the window resection, and if any name should be connected with the operation in general it should be Krieg's. I think, however, that it is more just to the many who have toiled to develop the submucous resection to name it after no man.

THE ACCESSORY SINUSES.

A number of modern methods for relieving empyema of the frontal sinus are now at our command and each is adapted to its own class of cases. The most radical procedure, that of Killian, is at present familiar to all and is suitable to the most inveterate and extensive types of frontal and ethmoidal sinuitis where nothing but the broadest access to the disease will suffice.

Cornelius G. Coakley[18] reports 101 recoveries in 113 cases of frontal sinusitis operated on by his open method. In this he removes the entire front wall of the sinus in the manner of Kuhnt, and after opening such adjacent ethmoidal cells as are diseased he packs the nasofrontal duct and the cavity of the sinus until they become obliterated by granulation so that relapses become out of the question. Some deformity, of course, remains. Richard Hoffmann[19] follows Kocher and Hajek in recommending the osteoplastic resection of the anterior wall of the sinus. Hoffmann begins with a cutaneous incision below the lower margin of the inner two-thirds of the eyebrow, not in the eyebrow itself, and follows this by a periosteal cut one-half centimeter above the orbital margin. A small opening is then chiseled into the lower inner part of the sinus and a probe is inserted to determine its extent and the thickness of its walls. Then, after the manner of Hajek, a vertical cut is made in the fold of skin marked by the corrugator supercilii and a rectangular bone flap is outlined after Kocher with the chisel, cutting outward above the brow and upward parallel to the septum of the two sinuses. If need be the neck of the bony flap may be narrowed with the chisel so that it will break over more easily. The base of the flap is then fractured, the flap held out of the way and the diseased mucosa and suppurating ethmoidal cells removed, the nasofrontal duct being enlarged as much as possible. The sinus is drained into the nose with a spiral silver wire drain and the external wound closed up in two days with a cosmetically perfect result. Hoffmann admits the possibility of relapses, but thinks the large opening made into the nasal cavity makes drainage so perfect that a recurrence is not of much consequence.

The osteoplastic operation even with the possibility of persistence of some of the discharge has the great advantage that the patient may be assured that there will be no deformity. It is, therefore, suitable for those cases where he refuses anything but palliative treatment, because of the dread of disfigurement. Where the frontal sinus has a thick front wall it is impossible to form a bone flap. The usefulness of the operation is, therefore, limited to larger sinuses with thin front walls.

The intranasal operation of Ingals is designed for those cases where the disease is probably confined to the frontal sinus and where the pathologic changes do not demand a free exposure of its cavity, or where the patient refuses all external operations. Ingals' procedure can only be used where it is certain that the frontal sinus may be entered with a probe. Ingals continues to find the operation satisfactory, and I think it may be regarded as one of our permanent resources in suitable cases.

The modern tendency is to abandon drainage of empyema of the maxillary antrum into the mouth as unsuitable and to rely instead on an intranasal opening. That this needs to be free enough to establish permanent ventilation in chronic cases is demonstrated by Johannes Martin,[20] who emphasizes the fact previously mentioned by Zuckerkandl and Zarniko that closure of the normal outlet of the antrum leads to absorption of the air in its cavity and a negative pressure that creates venous stasis in its lining, thus aiding in causing the chronic edema of the mucous membrane of the sinus so characteristic of older cases of maxillary sinuitis and which is one of the chief causes of the persistence of the suppuration. The needed opening may be made from the antrum into the nose after preliminary resection of the buccal wall of the maxillary sinus after the older method of Caldwell-Luc, or, as has more recently been advocated by Claoué,[21] Béthi,[22] George L. Richards,[23] Holbrook Curtis,[24] and myself,[25] the antrum may be opened widely from within the nasal cavity by resection

18. The Laryngoscope, 1905, p. 606.
19. Wein. klin. Rundschau, No. 45, 1904.
20. Monatsschr. fr Ohrenheil., p. 62, 1905.
21. Revue hebt. de Laryng. et de Rhinol., 1903.
22. Wiener klin. Wochft., 1904, Nos. 3, 4.
23. Journal of the American Medical Association, 1905.
24. The Laryngoscope, 1903, p. 737.
25. Chicago Med. Recorder, July, 1905; Illinois Med. Journal, 1905; Laryngoscope, 1905, p. 343.

of the greater part of its nasal wall without disturbing the buccal one. The latter method inflicts so much less injury than the Caldwell-Luc operation that its advantages are obvious. The amount of rhinologic skill required, however, debars the general surgeon from its employment and makes it eminently the method for the rhinologist.

M. Hajek[26] presents an important article on suppuration of the posterior ethmoidal cells and of the sphenoidal sinus. He describes his operative method for exposing the front wall of the sphenoidal sinus and for resecting it so extensively that relapses of the suppuration can not occur. He shows cuts of two beautiful forceps which seem perfectly adapted for the work.

Original Articles

REPORT OF FOUR CASES SHOWING THE RESULTS OF KILLIAN'S OPERATION.*

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All these patients whose cases are here reported had suffered for years from chronic suppurative ethmoiditis, with abscess breaking into the orbit. Exophthalmos varied from slight to marked protrusion of the eye. The operation performed was practically the one described by Killian.[1]

In the Massachusetts Charitable Eye and Ear Infirmary, we prefer Krause's trephine for making the opening in the nasal bone and then remove by means of bone forceps as much as is necessary for freer access to the nasal cavity. By this method there is less risk of breaking downward, an accident which probably would be followed by some deformity. Mosher's graduated curette is of great use in the deeper parts of the nasal cavity. In intranasal operations it is of inestimable value.

Great care must be exercised in avoiding injury to the lachrymal sac. Ophthalmologists tell us that injury to the superior oblique muscle is not harmful; care will prevent both of these accidents.

In one of these cases the sac was mildly affected for several days, although apparently it received no injury at the time of operation.

One is hardly warranted in drawing positive conclusions from four successful cases.

A somewhat wider experience with the so-called conservative or intranasal method, however, and the growing list of fatal results[2] render it questionable if the external operation should not be considered the more conservative; that it proved so in these cases is evident. Rhinologists are not agreed on the results by the intranasal method. For obvious reasons its performance is not without danger. One can not see the entire field of operation, and it is almost impossible to remove all the diseased bone.

The chief objection to the external method is the scar and the deformity from sinking of the tissues, but these

Fig. 1.—Patient in Case 1, six and one-half months after the operation.

objections hardly apply to the cases here reported. I am of the opinion that this method in the future will show a larger percentage of cures and a lower mortality.

Foster[3] states that in a series of eighty cases, published and unpublished, which he has been able to collect, only two deaths occurred, making a mortality of only 2.5 per cent. The cases collected by Turner show 87 per cent. of cures for the Killian operation, as against 58 per cent. for the Ogston-Luc.

Convalescence was rapid and uncomplicated. The wounds healed by first intention except in Case 2. Tampons to prevent hemorrhage were removed in twenty-four hours. There was no ethmoid packing and no after-treatment, except gentle cleansing of the nose. The supraorbital scar in all these cases is now practically covered by the eyebrow. The scar over the side of the nose can barely be made out. The contour of the skin is preserved by the supraorbital bridge.

The results of the *x*-ray examination have been unsatisfactory. The use of the *x*-ray as an aid in the diagnosis of diseases of the accessory sinuses is now almost universal, but the value to be placed on skiagraphy is not yet fully determined.

Coakley[4] has published the following conclusions:

First.—It is possible by means of a skiagraph to determine the presence or absence of a frontal sinus which extends vertically above the glabella.

26. Fraenkel's Archiv für Laryng., 1904, p. 105.

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. Killian: Münch. med. Wochft., No. 28, 1895, and Archiv für Laryngologie, vol. xiii, 1902.

2. Mosher and Toby: Report of Cases at the Meeting of the New England Laryngological and Otological Society, May 17, 1906.

3. Foster: Boston Med. and Surg. Journal, Jan. 25, 1906, p. 96.

4. Coakley: Transactions American Laryngological, Rhinological and Otological Society, 1905, p. 490.

Second.—A frontal sinus may be small, parallel with the upper, inner margin of the orbit and not detected in the skiagraph.

Third.—In all cases of unilateral diseases of the frontal sinus verified by operation, a cloudiness has been observed in part or all of the area occupied by the sinus and an indistinctness in the outline of the cavity when compared with the opposite or health side.

Fifth.—He believes that the examination of a skiagraph of the two frontal sinuses when compared with the results found on transillumination will aid very much in determining the presence of a diseased frontal sinus.

Sixth.—A skiagraph may also be of considerable value in determining the height and width of the ethmoidal cell area.

In two of my cases, however, the plates were entirely negative on the suspected side, the cloudiness appearing on the opposite or healthy side. This may have been and probably was due to faulty methods. Opinion based on many careful examinations of plates verified by operations is necessary to determine their true diagnostic value.

Fig. 2.—Patient in Case 2, six months after the operation.

CASE 1.—R. D., a weaver, age 54, born in Ireland.

Diagnosis.—Left frontal sinusitis, ethmoiditis.

Complications.—Left exophthalmos, with destruction of inner wall of left orbit.

Operation.—Radical frontal sinus operation (Killian).

History.—The patient was transferred from the eye department; his previous history was negative. He received a kick in the left eye 12 years ago. Eight weeks before admission he noticed a lump in the inner angle of the orbit. There was dull pain on pressure and slight headache over the left frontal sinus. He had a slight chilly sensation but apparently no fever. There was a slight discharge from the left nostril but no history of epistaxis. There was no nausea or vomiting; appetite was fair. V. O. D. = 20/20. V. O. S. = 20/40, .50 cyl. ax. 180° = 20/30.

Examination.—Nov. 28. O. D. normal and quiet. Fundus normal. The left globe was pushed outward; there was no limitation of motion in any direction. There was slight ptosis. At the inner superior angle of the left orbit, apparently occupying the region of os planum of ethmoid, was a firm elastic fluctuating swelling about the size of a marble. The rough edge of the orbital plate of the frontal bone can apparently be felt. The surface of the lachrymal bone was normal; there was no frontal tenderness. The fluctuating tumor was practically painless.

Nose: There was deviation of the septum to the left. The left middle turbinate was somewhat enlarged and blocked the narrow space above; there was no discharge.

November 29: The *x*-ray plate shows destruction of the inner wall of the left orbit, with disease of entire left ethmoid labyrinth.

Operation.—December 1: Ether was administered and the Killian operation performed. The usual frontal incision was elongated and carried down along the edge of the nasal bone, the cut was nicked for better coaptation. A fluctuating tumor was found protruding into the orbital cavity through the os planum of the ethmoid. It was incised, and the whole ethmoid labyrinth was found filled with mucopus. The floor of the frontal bone was wanting. The outer wall of the frontal bone was removed with exception of a narrow piece of bone with periosteum over the inner brow. The bone edges were beveled and the nasal bone and part of the ascending process of the superior maxilla were chiseled away. The ethmoids and the anterior two-thirds of the middle turbinate were removed. The incision was closed (silkworm gut) with the exception of a small opening at the outer end which was kept open for a wick. The nostril was packed with a long strip of selvage gauze. The eye was in normal position after the operation.

Fig. 3.—Patient in Case 3, five months after the operation.

December 2: The packing was removed from the nose and not replaced. The incision was clean. There was slight chemosis of the lids. Eye was normal.

December 4: The wick was removed; there was considerable nasal discharge.

December 8: The incision was almost healed.

December 9: The incision was healed; there was considerable nasal discharge. The ocular movements were apparently normal.

December 17: There was a very fine cicatrix. There was considerable crusting and discharge from the left nostril.

December 19: The wound had entirely healed (since December 9). There was a very fine light cicatrix, no depression, no external deformity. There was still considerable crusting of the nostril but the discharge grew less every day. The nose was sprayed with an atomizer. The patient was recommended for discharge (Fig. 1).

CASE 2.—S. J., aged 9.

Diagnosis.—There was a growth at the inner canthus of the left eye, frontal sinusitis and ethmoiditis.

Operation.—Exploration of frontal sinus (partial Killian).

History.—The patient had an abscess over the left eye two years ago, but had no further trouble until July, 1905. There was swelling at the inner angle of the orbit, lasting to date, with severe headaches. There was no pain in the eye and no history of trouble with the nose. The general condition was fair.

Examination.—December 4: O. S., normal. There was no chemosis of lids (with the exception of a small area to be described). The ocular movements were normal. Just above the inner canthus was a moderately large, apparently papillomatous growth which was movable and had no connection with the bony wall of the orbit (os planum of ethmoid). There was slight secretion about the growth and very slight redness of the skin immediately surrounding it. There was no tenderness over the frontal sinus. The probe did not enter the growth.

Left Nostril: There is a slight deviation of the septum to right. There was hypersecretion but no purulent discharge from nose. There is slight compensatory hypertrophy of inferior and middle turbinate on the left side. The mucous membrane was not reddened.

Operation.—December 6: Ether was used. The eyebrow was not shaved (after Killian). The usual frontal incision was prolonged downward along the nasal process of the superior maxilla. A bridge of periosteum and bone just above the root of the nasal bone was preserved. The bony inner wall of the orbit was exposed. There were no signs of disease. The frontal bone forming the supraorbital ridge was normal. A small hole was chiseled in the frontal bone low down, just above the articulation of the ascending process of the superior maxilla, and another more external into the supraorbital ridge. A very small and normal frontal sinus was found. The wound was closed (silkworm gut) with the exception of very small opening for drainage at the inferior angle.

December 8: The small drain was removed. The wound was clean. O. S. normal. There was still slight chemosis of the upper lid.

December 10: The subcutaneous sutures were removed.

December 11: The incision was practically healed. There was no chemosis of the upper lid; the movement of the lid was free. Ocular movements were apparently normal.

December 17: There was a slight thin cicatrix following the incision. A small ulcerated area just above the inner canthus was almost covered with epidermis.

December 19: The incision was healed. There was still a very small ulcerated area just above the inner canthus.

The patient was discharged well to the out-patient department Dec. 19, 1905 (Fig. 2).

CASE 3.—S. J., aged 6.

Diagnosis.—Right orbital swelling above the inner canthus; right ethmoiditis and frontal sinusitis.

Operation.—Radical frontal and ethmoid operation.

History.—The child had an attack of whooping cough in the summer of 1905, followed by pain about the eye at times, and occasional bloody discharge from the right nostril since the abscess of the orbit was incised in the out-patient department eight days before admission to hospital.

Examination.—O. D. normal. Ocular movements were apparently normal. There was some swelling and redness of the tissues just above the inner canthus and the scar of a recent incision. There was no marked chemosis of the lids, and no tenderness over the right frontal sinus. The mucous membrane of the nostril was somewhat reddened and there was hypersecretion. The middle turbinate was somewhat enlarged. The previous incision healed without fistula. X-ray plates were unsatisfactory.

Operation.—December 29: The posterior nares were plugged. The eyebrows were not shaved. The usual frontal incision was elongated and carried down along the nasal process of the superior maxilla closely following the circumference of the orbit. The cut was nicked for better coaptation. The periosteum was left along the superior ciliary ridge. With a chisel the bone was removed over the usual location of the frontal sinus, exposing a small area of the dura.

With a hand burr a small hole was drilled upward at the junction of the internal angular and nasal process of the superior maxilla into a very small normal frontal sinus; a bridge of bone with the periosteum was left over the brow. The nasal process was chiseled away and the ethmoid cells were curetted. These cells were found filled with granulations and pus. The ethmoidal vessels were pulsating. The anterior wall of the sphenoid and the pulley of superior oblique muscle were easily seen. The right middle turbinate was removed. The wound was closed with silkworm gut, and the right nostril was packed with a long strip of selvage gauze.

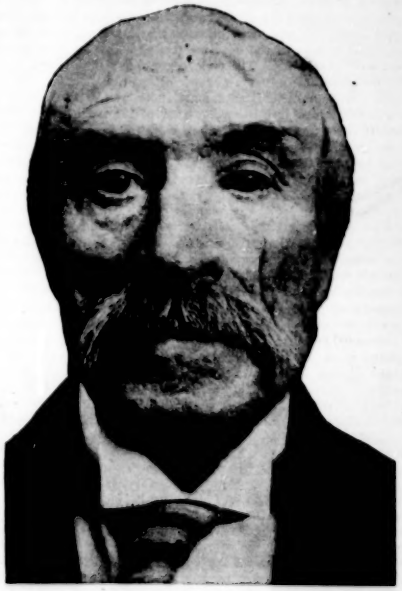

Fig. 4.—Patient in Case 4, four and one-half months after the operation.

December 30: Packing was removed from the nose; there was no hemorrhage.

December 31: There was slight chemosis of the lid. The wound healed rapidly.

January 5: The wound was healed. There was a very slight discharge from the nose. The eye was normal.

January 9: There was practically no discharge from the nose.

January 21: The patient was discharged well (Fig. 3).

CASE 4.—M. M., aged 60, a stonecutter.

Diagnosis.—Left ethmoiditis and frontal sinusitis.

Complications.—Orbital fistula and atrophic rhinitis.

Operation.—Radical frontal and ethmoid operation.

History.—For the past eight or ten years there has been a crusting and discharge from both nostrils. For six weeks before admission to hospital there had been a very profuse discharge from the left nostril. For one month there had been swelling and itching of the nose near the inner canthus of the eye which caused patient to rub it violently. One week before admission the swelling increased and there was a discharge of thick pus.

Examination.—O. D. apparently normal. In the right nostril there was atrophic rhinitis with crusts. O. S.: There was slight conjunctival injection with chemosis and reddening of the upper lid. A fistula was discharging pus above the inner canthus; a probe apparently encountered denuded bone. The lachrymal sac apparently was not involved. There was no distinct tenderness over the left frontal sinus. There was marked deviation of the septum to the left, and there was a distinct mucopurulent discharge from the region of the middle turbinate, which, apparently, was not enlarged. There was atrophic rhinitis. An *x*-ray picture was not taken.

Operation.—January 29: The eyebrow was not shaved. The usual frontal incision was elongated and carried down along the nasal process of the superior maxilla; the cut was nicked for better coaptation. The periosteum was stripped back with the exception of a narrow band along the superior ciliary ridge. With a hand burr a small hole was drilled into the left frontal sinus just below the root of the nasal bone. The frontal sinus was opened (Killian chisels V) high up and the edges were beveled, a supraorbital bridge of bone with periosteum being left over the inner brow. A few granulations were found in the frontal sinus, otherwise it was normal, no pus. A portion of the left nasal bone, the nasal process of superior maxilla, and part of the os planum of the ethmoid were chiseled away. The ethmoid cells were curetted out; they were filled with granulations, but no pus. The left middle turbinate was removed. The wound was closed with silkworm gut. The left nostril was packed; a postnasal plug was introduced at the beginning of the operation. A fistula leading into the abscess cavity did not apparently directly communicate with the ethmoid cells.

February 4: The incision healed by primary union. The stitches were removed February 3. There was a slight discharge of pus from the fistulous area just above the inner canthus. There was slight conjunctivitis (bulbar), but the motions of the eyeball were apparently normal. There was considerable crusting of both nares, slightly more marked on left.

The man was discharged well Feb. 12, 1906 (Fig. 4).

DISCUSSION.

DR. C. G COAKLEY, New York City, stated that he saw Killian operate and saw the result, last summer. Dr. Coakley finds that in the cases in which he himself has operated there is a great deal of discharge from the nose for some months after the operation. In all the cases he saw last summer in Killian's clinic, patients who had been operated on from three to five months previously, there was still a discharge, but the patients were relieved from the headache and other symptoms for which the operation was performed. Still they could not be called cured from the standpoint of a clean nose. Practically all patients who had been operated on two or more years before Dr. Coakley visited the clinic, and five or six came for his inspection, were perfectly well and free from any scab or sign of pus in the nose. The scar from the Killian operation is linear and in that respect it is better than some other methods of operating. The depression which comes from Killian's operation is greater than from any other form of operation of which Dr. Coakley knows. The large depression can not be helped but it can be overcome to a great extent by the subcutaneous injection of paraffin. He believes that Killian's operation is valuable and one that is satisfactory in many cases.

DR. H. P. MOSHER, Boston, said that he has seen a number of cases of Killian's operation, seven in all. He agreed with Dr. Coakley that the amount of depression in the Killian operation is considerable but in his experience, even in large sinuses, it is not more than the amount of depression from some other operations. He asked why there should not be a considerable discharge for a time after such an extensive operation as the Killian. It does not seem to him at all abnormal. It goes away in time.

DR. THOS. J. HARRIS, New York City, declared that the last word in reference to the proper surgical procedure on the frontal sinus has not yet been spoken. He believes that it will only be by the largely increased experience of all rhinologists that we will be able to say what is the best method of attacking the frontal sinus radically. While he agreed with the favorable remarks on the Killian operation, he said that it is but fair that we should not lose sight of the fact that the Killian operation is not the only operation. The operation Dr. Richards has used in a number of cases has been satisfactory. He showed a year ago cases in which the medical results could not be excelled. The method commonly used, the open method, is undoubtedly a proper one to pursue, Dr. Harris said, and yet perhaps the Killian operation will give better results in the majority of cases. Still it presents difficulties in practice, and possible accidents may occur. Any one who has not tried it and expects that it will be as easy as a paracentesis of the drum or opening an abscess will be disappointed. In considering the best method of approach, the possibilities of intranasal surgery must be considered. A short time ago Dr. Harris was of the opinion, he said, that an approach through the nose to the frontal sinus was distinctly contraindicated, but he has watched Dr. Ingals' work and although he has not done the operation, he thinks it might be one to consider. Dr. Wyeth has recently written an article on this subject and he states that he has had no chronic empyema of the frontal sinus with symptoms of such degree and extent as to demand external operation. Dr. Harris grants that this operation perhaps suggests possibilities of untoward danger, but with the instruments used and the methods suggested by Dr. Ingals and Dr. Myles there is the possibility of a satisfactory approach through that route.

DR. W. P. EAGLETON, Newark, N. J., referred to the four cases mentioned by Dr. Jack in relation to opthalmitis, and said that Dr. Jack was not speaking of chronic suppuration, but the relation to exophthalmos. Killian's operation is the only one that gives an entrance not only to the frontal sinus, but to the anterior and posterior ethmoidal cells. Of all the operations it is the only one that will give a chance of drainage. Dr. Eagleton has seen a case of double opthalmitis with exophthalmos on one side, and total blindness on one side, completely cured by drainage through Killian's incision going back through the ethmoidal cells. About the advantages of the external operation he said that he knows of two instances, one fatal, that have never been reported, and one in which the patient, a man, is now in bed after four months with infective arteritis after an internal operation. He knows of no instance in which the external operation has been followed by a fatal result or fatal infection.

DR. G. L. RICHARDS, Fall River, Mass., declared that there is one phase of this question of frontal sinus disease which has not been referred to, but which from the standpoint of the private patient does have some effect. That is, a patient says, "I have had catarrh for years." The physician looks in the nose and finds a blocked frontal sinus and swollen middle turbinate. He removes the turbinate, the drainage is improved and the patient disappears. The physician looks these patients up, and they say: "I have no more trouble or pain. I have always had catarrh." The physician has made substantially a cure. The patient has only a little mucopus discharge, uses only one or two handkerchiefs a day and has no more trouble. Dr. Richards had a patient not long ago, illustrating that point. The middle turbinate had forced its way through and produced a fistula near the internal angle of the eye, which suggested an abscess of the tear duct and he had been treated for that. Dr. Richards took off the middle turbinate and told the man to come back and he would do a radical operation. The man came back when sent for and said: "No operation on me." From a strictly rhinologic standpoint he was not cured, but from the patient's standpoint he was practically cured.

DR. E. FLETCHER INGALS, Chicago, had no criticism to make of the external methods, they are admirable operations, he

said, but many times they are unnecessary. From experience during the last year he is of the opinion that the intranasal method he has recommended, where a probe can be passed into the frontal sinus is as safe as any, and the results are good in the majority of cases. Dr. Ingals has seen only one case in which the results were not good, and that was where some one meddled afterward with the external operation; that caused all the trouble. The suppuration continued and kept discharging through the nose and the patient disappeared with the discharge going on. In that case it was clear that there was some condition that had not been thoroughly attended to at the time of the external operation and perhaps another operation would have been required to clear up the work. Dr. Ingals would not urge that the internal operation is a panacea, but he believes that when the cavity can be entered with the probe it is a safe and good operation and will cure a large percentage of the cases in a few months, which is as much as can be claimed for the external operation, and there is not the scar.

Dr. Otto T. Freer, Chicago, said that one point in the Killian operation which he would like to have considered is the removal of the orbit, which seems to him an objectionable feature.

Dr. F. L. Jack, Boston, in closing the discussion, said that he did not hope to have a discussion on the frontal sinus at all, he simply wanted to explain his cases, which he had hoped to show. There was no question as to the operation. The patients had large orbits and exophthalmos. Some of the cases had lasted for a number of years. He said that his hospital house officer tells him that the cases are perfectly dry, there is no discharge from the nose; he has seen them recently. So far as Dr. Jack has seen the cases there is absolutely no depression. He has one or two cases in which one would have to get within a foot of the patient in order to see any scar. Of course there would be no question of a Killian operation in the class of cases mentioned by Dr. Eagleton. It is the only one to do.

A NEW METHOD OF ANASTOMOSIS OF THE VAS DEFERENS.*

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CHICAGO.

With the subsidence of the furore which attended the introduction to the profession of operations on the spermatic cord for prostatic disease, vasectomy was practically relegated to the dead lumber room. While recognizing the fallacy of the claims first made for testicle and cord operations in the relief of prostatic hypertrophy, and having early put myself on record in opposition to the extravagant claims made for such operations, I do not believe that the profession will be inclined to accuse me of over enthusiasm in my endeavor to establish the operation of vasectomy as a legitimate means of relief for certain conditions.

Despite the over enthusiasm which attended the introduction of cord operations, it was not fair to push them aside simply because they did not fulfill the extravagant expectations of those who for one reason or another first advocated them. Whatever may have been the merits of the operation as originally devised, this much must be conceded, viz., that cord operations in suitable cases have a profound influence on the innervation and circulatory supply of the prostate and seminal vesicles. Incidentally, a marked effect on nutrition must necessarily result. These effects, which we will term, for the sake of argument, physiologic, are not so manifest in elderly patients, in whom the importance of the sexual function is not great, as in younger patients, in whom the sexual function is at its height of activity.

This is an important point, for the value of the cord operations has thus far been estimated from their effects in advanced prostatic diseases in old subjects. These operations have not been employed to any extent in younger patients, in whom beneficial results can be more logically expected.

In setting forth the claims of vasectomy as an operation which has a legitimate field in genitourinary work, I wish it to be distinctly understood that I do not advocate the operation in any case in which there is a reasonable probability of relief being afforded by less radical means. The operation, when properly performed, is practically free from danger. It does not produce, as was formerly supposed, atrophy of the testicle—a condition which, when it follows vasectomy, can be explained on grounds other than disturbed circulation and innervation incidental to the operation on the vas. It is hardly fair, when the operation is clumsily performed, the testicle traumatized, and the tissues perhaps infected, to attribute the resulting atrophy of the testes to the vasectomy.

The principal objection to the operation thus far advanced is its alleged effect on the sexual power. It does not, so far as my experience goes, produce impotency, and while the bilateral operation necessarily prevents the testicular secretion from taking its normal course, sterility can not fairly be charged up to the operation, if the patient has been impotent prior to its performance. In other words, in most of the cases in which I advocate the performance of vasectomy, the patient is already impotent, and therefore dynamically sterile, and the operation does not add to his woes in these respects.

The most important point of all is the fact that while the operation does not produce permanent sterility, it is by no means necessary that the patient should remain sterile after the operation has accomplished its purpose. It is practicable in probably by far the larger proportion of cases to restore the continuity of one or both vasa deferentia at any time the surgeon may so elect, thus restoring fertility.

The operation of vasectomy has a certain range of application in sexual neurasthenics, spermatophobiacs, and in genuine spermatorrhea. The type of such cases is the individual who has been "quacked" for many years, is impotent, and profoundly neurasthenic, with or without frequent seminal losses. We are wont to say that suggestion and kindly counsel are all that are necessary in the management of such patients. Every practitioner of experience well knows that these means are often ineffective. Treatment, both local and general, is a failure in a certain proportion of such cases.

In a large proportion of cases of pseudo-spermatorrhea, the morale of the patient is so disturbed by prolonged treatment by quacks and worry that the condition with which we have to deal is one of psychopathia. These patients are impotent and perhaps have even lost sexual desire. More or less frequently recurring nocturnal emissions constitute a symptom which, pooh-pooh it as much as we like, has a very disastrous effect on the mind of the patient. Treat such patients as conscientiously as we may, a certain definite proportion of them fail to find relief. Indeed, no relief can be afforded the mental condition until the emissions have been checked for a more or less prolonged period. It is

* Read at the Meeting of the Illinois State Medical Society, May 16, 1906.

easy to talk about the efficacy of suggestive therapeutics in such cases, but in many of them it is a practical impossibility to accomplish anything so long as the emissions continue; and continue they will, despite all the ordinary methods of relief. Marriage as a specific is not always effective and is often inexcusable. I have seen a number of cases in which it not only was ineffectual, but appeared to aggravate the condition. It is not unusual for individuals who have been long married to become the victims of nocturnal losses as a result of neurasthenia or of some disturbance of the brain or cord due to irritation of the sexual apparatus from one cause or another.

Prostatic inflammation and seminal vesiculitis are perhaps the two most important conditions which give rise to nocturnal emissions. Prostatorrhea, dependent on hyperemia or inflammation of the prostrate, whether or not associated with symptoms of inflammation, is very often exceedingly resistant to treatment. Such patients are usually spermatophobiacs, it is true, but no amount of reasoning suffices to argue them out of the belief that the prostatorrhea constitutes a serious drain on the nervous system. The psychic demoralization of the patient is in many of these cases very profound. It has been my experience that while the majority of cases of prostatorrhea yield readily to treatment, a certain proportion of cases are absolutely resistant to it. Hypochondriasis, or even typic melancholia, may result, in the foregoing disturbances of the sexual system.

The records of our asylums show only too plainly that definite psychopathia is not infrequently associated with morbid conditions of the sexual apparatus. I will not take up here the question of the relation of masturbation to cerebral disorders, save to say that, whether it be admitted as a cause of psychopathia or not, it enters very largely into the field of brain abnormality, as it comes under the observation of the alienist.

I believe that, in the cases described, the operation of vasectomy has a perfectly legitimate field. That the result, if beneficial at all, is necessarily due to the psychic impression of the operation is not tenable, in view of what we know of the physiologic effects of resection of the vasa deferentia. The hyperesthesia of the sexual organs, particularly of the prostatic urethra and seminal vesicles, that exists in these cases, is unquestionably lessened by the operation.

True spermatorrhea is a rare condition, and as intractable as it is rare. That the disease is associated in the majority of cases with cerebrospinal disease of various kinds, is well understood. The fact that the primary disease is of an incurable nature, renders the duty of checking the pathologic seminal discharge none the less imperative in some cases because of oth the physical and psychopathic results which are produced by it. Vasectomy affords in these cases the only hope of relief of what is a very prominent symptom, in the mind of the patient, at least. That the seminal loss is productive of debility, goes without saying.

Since the operation of prostatectomy has been generally adopted by the profession, patients appeal to us for relief of prostatic disease at a much earlier period than formerly. We are often consulted by patients at or but little past middle life, in whom the sexual function is still in full vigor. In many of these cases palliative treatment by massage, sounds, instillation of silver and proper hygiene will give relief and prevent serious trouble developing later on. In some cases, however, despite all our efforts, the prostatic symptoms continue and examination shows progressive enlargement of the prostrate. In such cases we are really not justified in suggesting prostatectomy until other means have been tried. Here, it seems to me, is a most useful field for vasectomy. Although the operation in old prostatic patients has not been followed by the degree of success at first claimed for it, it is far different in relatively young individuals in whom prostatic fibrosis is not yet developed. Here vasectomy offers a more than fair prospect of relief.

In intractable chronic prostatitis and seminal vesiculitis, vasectomy is of the greatest value. Its beneficial effects are due not only to the change which it induces in the circulation and innervation of the prostate, but also to the rest which it secures to the seminal vesicles. Chronic seminal vesiculitis is in some instances absolutely resistant to treatment. The patient is worn out by frequent micturition due to irritation of the vesical neck, with more or less constant pain in that vicinity, radiating into the perineum, testes, penis. Hemorrhagic emissions and functional disturbances of the sexual apparatus are very frequent. Frequent and exhausting nocturnal emissions and painful ejaculation are not rare in such cases. Patients afflicted in this way are generally

Figure 1.

ready to submit to almost anything which offers a prospect of recovery. This has led some over enthusiastic adherents of vesiculectomy and vesiculotomy to propose operation directly on the seminal vesicles. This operation is dangerous, difficult, and extremely bloody, and in my opinion should not be resorted to until vasectomy has been given a fair trial. It should be remembered in this connection that the full benefits of vasectomy, even in favorable cases, can not be expected for several months.

In passing, I will call attention to a very important point relative to operations directly on the seminal vesicles, viz., the victims of seminal vesiculitis are often so profoundly neurasthenic that no surgical procedure is likely to give relief. It is by no means consoling to have the annoying symptoms continue after so formidable an operation as vesiculectomy. This is a further argument in favor of a trial of vasectomy before the major operation is resorted to.

A very important field of usefulness for the operation of vasectomy is recurrent epididymitis. In infective conditions of the prostate the epididymis on one or the other side often becomes infected and develops a greater or less degree of inflammation from time to time. In most instances the infective condition of the deep

urethra on which the epididymitis depends can be corrected. In some cases, however, despite methodic, scientific treatment, the epididymis becomes inflamed at intervals and disables the patient for a greater or less period. This not only occurs in young and middle-aged subjects as a consequence of a specific infection, but in prostatics from pus or septic infection. The prevention of epididymitis in the latter class of cases is, of course, prostatectomy, but there are instances in which the patient is either too young for the operation or refuses to have it performed. Under such circumstances the operation of vasectomy may be performed, with the double object in view of attaining such permanent benefit as may accrue in the particular case so far as the enlargement of the prostate is concerned and the prevention of further attacks of epididymitis. That the integrity of the testes in these cases is in no wise menaced by the operation numerous cases in my own experience testify.

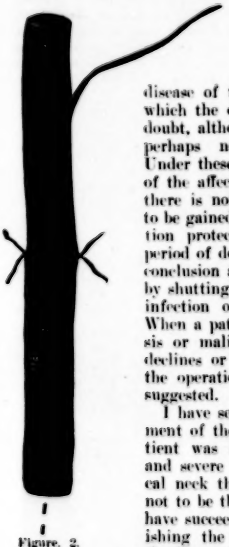

Figure 2.

The operation of vasectomy has a certain range of application in suspected or known tuberculosis or malignant disease of the testes. Cases occur in which the diagnosis is considerably in doubt, although a hard, thickened and perhaps nodular epididymis exists. Under these circumstances the fertility of the affected testis is already *nil*, so there is nothing to be lost and much to be gained by vasectomy. The operation protects the patient during the period of delay in coming to a positive conclusion as to the nature of the case by shutting off the principal avenue of infection of the genitourinary tract. When a patient with known tuberculosis or malignant tumor of the testis declines or defers a radical operation, the operation of vasectomy should be suggested.

I have seen several cases of enlargement of the prostate in which the patient was so debilitated by frequent and severe hemorrhages from the vesical neck that a radical operation was not to be thought of. In these cases I have succeeded by vasectomy in diminishing the frequency and severity of the hemorrhages or checking them altogether, thus enabling the patient to gain sufficient strength to endure prostatectomy. I recall one case in which the patient had suffered from such severe hemorrhages from an extremely large, hard prostate that I suspected malignant disease. Vasectomy was performed in this case, and about two months later prostatectomy was done. The result of the vasectomy was all that could be desired, and, while the patient was in by no means first-class condition at the time of the prostatectomy, he was sufficiently recuperated from his anemia to render operation justifiable. In cases of enlargement of the prostate where the patient can not or will not have prostatectomy performed, or in which the general condition is so bad that the radical operation does not seem advisable, vasectomy is indicated. It is often palliative, and, while I believe the reports of cures accomplished by the operation were undeniably exaggerated, I believe that the frequency with which benefit is derived from vasectomy warrants the operation under the circumstances outlined.

In inoperable malignant disease of the prostate with severe hemorrhages, vasectomy has, in my experience, been beneficial. There is no possible objection to the operation, and, therefore, no reason why the patient should not have the benefit of an attempt at palliation by its performance.

TECHNIC OF THE OPERATION.

After the usual preparation of the scrotum the vas is isolated from the cord and picked up in a fold of skin between the thumb and index finger. As small an amount of the skin as possible should be grasped with the vas. A straight needle of good size is now made to transfix the scrotum beneath the vas in such a way that the latter structure remains pinned firmly into the fold of skin and underlying fascia in which it was included by the grasp of the thumb and finger. The vas can now by no possibility slip away from the operator so long as the needle is *in situ*. An incision from a quarter to a half an inch in length, the smaller the better, is now made parallel with the vas and directly over it. The vas is exposed, separated from the fascia which envelops it, and lifted out of the small wound in the scrotum. It is now stripped for the desired distance until a sufficient extent of it is freed. If it be considered advisable to resect the entire vas up to the inguinal ring, a relatively free incision should be made just below the latter structure, so that the vas may be separated from the cord well up within the inguinal canal. The high incision is only necessary in cases of known or suspected tuberculosis or malignant disease. For ordinary purposes, as much of the vas as is necessary can be readily removed through the small incision which I have described. The vas, having been ligated at the points of election by medium-sized catgut, is resected, the lumen of the tubes at the severed ends touched lightly with carbolic acid, and the ends tied together by two of the free ends of catgut used in the ligation. The fascia should be stitched over the vas with fine catgut and the skin wound united with horsehair.

Figure 3.

In a certain as yet undetermined proportion of cases it is possible so to anastomose the divided vasa deferentia as to re-establish their continuity. This operation is not necessary save in cases of bilateral accidental injury or bilateral vasectomy. It is, however, an operation that should be performed whenever in the course of an operation the vas, even on one side, has been severed. A single permeable vas is sufficient in so far as fertility is

concerned. Hence it follows that in cases of double resection, followed at a greater or less period by double anastomosis, there are two chances of restoring fertility. One or the other vas is liable to regain patency as the result of anastomosis. The time which should be allowed to elapse following the vasectomy before anastomosis is performed will necessarily vary, according to the amount and character of the improvement in the condition for which the vasectomy was originally performed.

A longitudinal incision from one and a half to two inches in length is made down to the spermatic cord and the vas deferens exposed, freed from its enveloping fascia and lifted out of the wound. The incision is made so that its center corresponds as nearly as possible to the slight nodule on the vas, which indicates the site of the original resection. The vas having been exposed, the nodule is excised. A fine, sharp-pointed probe or long straight needle is now passed into the vas, which is bent at a sufficient angle to facilitate passing the needle through the wall of the duct about an inch and a quarter from its cut extremity (Fig. 1). A strand of the heaviest silkworm gut is now passed into the vas and out of the opening made by the needle. This can be done with no difficulty whatever. The opposite end of the silkworm gut is made to enter the lumen of the distal end of the vas. The object of this silkworm gut is to preserve the continuity of the lumen of the vas during the process of healing. The vas is now stitched, end to end, over the coupling of the silkworm gut with very thin catgut (Fig. 2). A portion of the free edge of the fascia which was divided in order to expose the vas deferens is now wrapped about the vas for a short distance above and below the line of anastomosis. The envelopment of fascia is now stitched about the vas deferens in such a way that the line of junction of the vas is completely closed in. The free end of the silkworm gut which has been made to traverse the wall of the vas is now passed from within outward through a puncture in the fascia and skin and made to emerge a short distance above the upper angle of the incision (Fig. 3). Care should be taken not to pull on this strand of silkworm gut, the intention being to allow it to remain within the lumen of the vas until complete union has occurred. The silkworm gut should be removed at the end of a week. The fascia is now stitched with fine catgut and the edges of the scrotal wound brought together with fine silkworm gut or horsehair. The process is repeated upon the opposite vas. There is very little reaction following the operation, although a certain amount of exudation and nodulation about the line of union is perceptible for some weeks after the operation.

Of the six cases which I have operated on in this manner, one has shown microscopically a restoration of the function of the vas on one or the other or both sides by the presence of spermatozoids in the semen. Of the other five, one is apparently a failure, and I have had no opportunity to determine the condition of two. The last two cases were too recent for consideration here.

Unrecognized Causes of Cough.—G. S. Ingersoll, in *Mass. Medical Journal*, June, 1906, describes two unrecognized or unusual causes of cough: 1, Hypertrophied glossal papillæ, overlapping an epiglottis which is bent far forward but otherwise normal; 2, a congenitally asymmetrical epiglottis, which has been made still longer by inflammation, caused by constant friction with the tongue.

ELBOW-JOINT INJURIES, WITH REPORT OF CASES.

STEWART L. McCURDY, M.D.

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Elbow-joint injuries are troublesome and frequently leave the arm in a most useless condition. Causes for such a condition are fracture into the joint, with displacement of fragments, dislocation forward of the head of the radius, and pathologic ankylosis. In all of these conditions when it is impossible to use the hand while dressing and eating, any operation that will place the hand back into service will be acceptable to unfortunates, and recommended by physicians.

CASE 1.—A young man received the contents of a shotgun in the elbow, the upper part of the radius and ulna being torn off. Figure 1 shows that these bones were thrown above the condyles of the humerus. The operation consisted in squaring all the bones so that their ends could rest against each other. This required the removal of the condyles of the humerus at about the diaphyso-epiphyseal line, and the removal of the upper end of the bones of the forearm. The wound healed promptly. Figure 2 shows that extension is complete. Flexion

Figure 1.

is somewhat better than shown in Figure 1. The usefulness of the forearm is greatly increased.

CASE 2.—Another case of equal interest is that of a young man who received a compound dislocation of the elbow joint and fracture of the olecranon process. The external condyle, including the entire radial articulation, was broken away. This, as you can see, means that the origin of the entire extensor group of muscles from the external condyle was destroyed, all of these muscles being lacerated extensively. The forearm was turned inward to a right angle with the arm.

The patient expected amputation when he came to the hospital. The operation that was done, however, was first to wire the fractured olecranon (Fig. 3). All of the muscles that were so extensively lacerated were brought back into position and sutured to the soft structures that remained about the external condyle, some to the periosteum of the supracondyloidal ridge, others to what remained of the orbicular and external lateral ligament. The forearm was placed in extreme extension, as all elbow joint fractures should be placed. The forearm in semipronation so that the head of the radius might rest as near as possible in its normal position, or, in this case,

immediately distal to the point where the external condyle would be, had it not been torn away. The positive injunction to the patient, nurses, and house physician was, "thumbs up."

The wound healed promptly and the patient left the hospital in three weeks. At the end of eight weeks he was given an anesthetic and *brisement forcé* practiced for the first time. I do not believe in passive motion in these cases for the first six or eight weeks or during repair. Immediate passive motion in fractures and injuries to joints is as great a factor in the production of ankylosis as the injury itself. After the forcible breaking up of the adhesions in this case the patient was permitted to make such use of his arm as he desired. The case

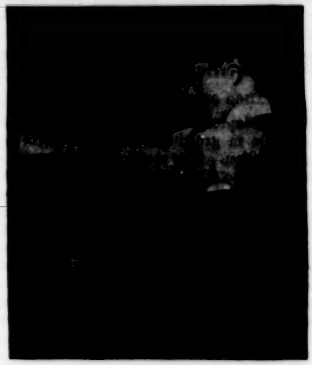

Figure 2.

was seen every few days and forcible manipulations were kept up. The result obtained is shown in the accompanying photographs taken four months after the accident. The arm is practically as good as before the accident. The extensor muscles became attached to the cicatricial scar about the external condyle. All finger and wrist movements are normal. He can extend the forearm completely and flex it sufficient to

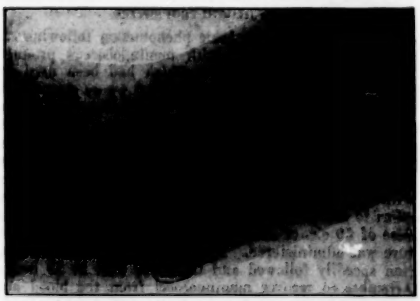

Figure 3.

button his collar and tie his necktie. Figure 4 shows the arm in extension. Figure 5 shows the range of motion with the arm in flexion.

Case 3.—This was a forward dislocation of the head of the radius resting on the anterior surface of the condyle of the humerus.

This variety is one of the most difficult displacements to reduce and maintain in reduction, even immediately after dislocation. As time passes the task increases. After five or six weeks when ruptured ligaments have had time to repair, it is practically impossible by the bloodless method to force the head of the bone down in position, and when this can be done there is not one case in ten that it will not return as soon as the hands are removed. When it is possible to reduce temporarily by plaster-of-Paris or a splint, the amount of pressure required to hold the bones in position will invariably cause pressure sores. With such a deformity the arm can not be flexed sufficiently to permit the patient to eat or dress with the disabled arm.

Figure 4.

In view of such helplessness, I have performed open operations and placed the bones back in position, and

Figure 5.

secured the head of the radius with sutures and made further effort to maintain a reduction with external supports. Disappointment as a rule followed, for when repair had taken place, and an effort was made to flex the forearm on the arm, no appreciable improvement had been made. In view of the foregoing, and with a desire to make some permanent improvement, I decided to remove the head of the radius and enough of the shaft to permit free flexion.

The operation consists in making a longitudinal incision immediately over and down to the head of the radius. The head is dissected out and cut off with a Gigli saw. An effort is now made to flex the forearm If this can not be done, another half inch of the bone is removed and the forearm again flexed. If complete flexion can not be made other segments must be removed

Figure 6.

until a range of motion can be made. The wound is now closed, and under proper precautions should be well in two weeks.

Figure 6 shows a radiogram of an elbow taken several weeks after the injury. The bony deposits on the anterior portion of the capsule prevent flexion of the forearm. Operation for the removal of the bony formation was advised.

THE POISON OF THE MENINGOCOCCUS.*

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Perhaps it would be less presumptuous to entitle this communication "A Poison from the Meningococcus." By this expedient one might at least evade some of the perplexities which now surround the problems relating to the composition, varieties and effects of toxic substances elaborated by pathogenic bacteria. At least it is my desire to escape as far as possible any committal on the head of the exact nature of the agent to be here described, and to record simply the method by which a product with poisonous properties was obtained from cultures of the meningococcus and tested for its toxicologic action.

The subject for these experiments was the horse, and it was by means of intravenous injections that evidences of a powerful poison derived from the meningococcus were first secured. Such toxication was elicited both by the use of living cultures, dead cultures, acidulous cultures in glucose broth; but the most pronounced effects and those of relatively uniform certainty followed the use of a filtered or unfiltered meningococcus culture specially prepared.

SOURCE OF CULTURES.

Pure cultures of the meningococcus from several sources have furnished the seed. No difference of noteworthy magnitude has been detected between the poisons from each of these several cultures which include one from Professor Hektoen's laboratory in Rush Medical College, isolated by Dr. D. J. Davis from the spinal fluid of a case of cerebrospinal meningitis, and three from the laboratory of Professor Ewing in Cornell University Medical College procured by Dr. W. J. Elser from the nasal discharge, circulating blood and spinal fluid in three cases of meningitis. All these cultures exhibit the usual characteristics of the meningococcus. All produce acid in glucose bouillon and expire after a brief existence, usually as a filmy surface growth. These stock cultures have been kept in a state of active vegetation by 48-hour transfers on a Loeffler's medium prepared with horse serum. Repeated attempts to induce specific pathogenic effects in rabbits and guinea-pigs through the agency of subcutaneous, intraperitoneal, intranasal, subdural and intracerebral injections of living fluid cultures were fruitless.

METHOD OF OBTAINING THE POISON.

As finally adopted, the procedure for obtaining the poison consists in growing the meningococci on a glucose-chalk-bouillon. The medium is ordinary beef peptone bouillon. Lots of 500 c.c. are placed in Fernbach flasks to obtain large aërobic surface exposures. The glucose in proportion of 0.5 per cent., which is dissolved in water and separately sterilized by discontinuous steaming, and the chalk in proportion of 1 per cent., which is suspended in water and previously sterilized in the autoclave, are added to the bouillon at the moment of planting with the meningococcus. At ordinary brood oven temperature the meningococcus grows luxuriantly in this medium as a surface layer with stalactite-like pendants, as thick as the veil of a diphtheria culture but a little less coherent. During a period of from two to four weeks several such layers form and the mother liquor takes on a darker hue. By constantly neutralizing its acid, and perhaps also by the liberal exposure to the air, the meningococcus retains its vitality for a period of from three to six weeks in one of these flasks of glucose-chalk-bouillon. At the end of this term (three to six weeks) trikresol is added and the mixture filtered through paper.

TOXICOLOGIC PROPERTIES.

A clue to a uniform toxic phenomenon following the treatment of the horse with meningococcus products came by accident. A horse which had been used for various immunizing experiments, and whose skin was in consequence easily aroused to suppuration, was tentatively subjected to ascending subcutaneous injections of living and dead cultures of meningococcus in glucose bouillon which reached 80 c.c. each in amount. Moderate febrile reactions followed these injections, together with local swelling and not infrequently abscess. In the effort to escape the troublesome abscesses an intravenous dose of 50 c.c. of seven days' living meningococcus culture was administered. Evidence of profound intoxication speedily followed and the horse died in 18 hours. Attempts to recover meningococci from the blood and organs of this animal were futile. With the express purpose of studying this form of poisoning, three new horses were secured and employed for experiment.

The first of these animals was subjected to an intravenous injection of 50 c.c. of meningococcus glucose-broth culture, half of which had grown for 6 days and the remainder for 13 days. It expired between the twelfth and fourteenth hour after the treatment. Another horse received in the jugular vein 10 c.c. of the culture, half of which had grown for ten days and was dead; the remainder was 6 days old and alive. This

* Read before the American Association of Pathologists and Bacteriologists, Baltimore, May 18, 1906.

horse survived 62 hours. The third animal was treated with intravenous injections of the trikresolized poisonous extract prepared as described above. Three doses of 10 c.c., 20 c.c. and 30 c.c. each were administered, each causing severe temporary illness with symptoms like those obtained with the cultures, but in each instance the animal finally recovered. As the symptoms of intoxication were essentially alike in all of these tests, they will be summarized. The only exception is that the nervous phenomena were more intense in the animals in which the specially prepared poison was used. At this point it might be added that subsequent experiments have shown that the special poison in sufficient subcutaneous dose, besides arousing fever and extensive local swelling, induces the nervous symptoms to be mentioned. Further, the poisonous effect is absent when the fluid is filtered through unglazed porcelain bougies or balloons, but present and active in the product of filtration through Berkefeld candles.

Within five minutes following the administration of the meningococcic products restlessness is produced, accompanied by a rise in temperature, pulse and respiration. The temperature reaches a maximum elevation of 4 or 5 degrees F. above normal; the pulse increases to 70 or 100, is soft and compressible, the respirations become accelerated to 30 a minute, are labored and take on a Cheyne-Stokes character. The animal paws, moves from side to side, breaks out in a profuse sweat, its head droops, restlessness and depression become more pronounced and in from 15 minutes to 2 hours, depending on the dose, it falls, not to rise again if the dose is fatal. With non-fatal doses the severe symptoms usually abate after 12 hours. The additional symptoms of a kind indicating particular involvement of the nervous system are as follows:

Almost immediately after the injection the horse exhibits weakness of its hind legs; it stands insecurely, shifting its weight from one hind leg to the other, and this evident asthenia becomes more pronounced until the animal falls. Muscular tremors appear, at first localized, fleeting and fibrillar, gradually becoming coarser and generalized; finally distinct clonic convulsions of large muscle groups like those of a limb, of the neck, of the back, or of the belly occur. In several instances these more severe spasms of the back and belly cause a pronounced transient opisthotonos. The subject was unusually sensitive to noise, and spasms more or less severe could be provoked by this form of irritation or by unexpectedly touching the body. Repeated soft bowel movements were noted during the period of acute symptoms. In event of a fatal outcome the more distressing symptoms gradually subsided, and death took place from exhaustion, such as one often sees in human beings with nervous disorders like tetanus, hydrophobia, epilepsy, mania and the like.

CONCLUSION.

To pass in review the essential points of this communication it may be reasserted that it deals with a poison of the meningococcus whose effect is most readily observed in horses subjected to intravenous injection. This toxic agent can be demonstrated in living fluid cultures of the meningococcus and in the dead fluid cultures. But its most uniform manifestations appear in the product of meningococcus cultures grown by a special method; and the toxicity is here elicited both in fluids roughly strained through paper or filtered through the Berkefeld bougie.

NEW PHENOMENON OF COLOR CONVERSION.*

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It is several years since I first observed and instituted some experiments with an interesting color conversion phenomenon which, so far as I could learn, had previously been unobserved.

After some thought and examination regarding the phenomenon I communicated it to Dr. George T. Ladd, professor of philosophy in Yale University, who, in connection with Prof. E. W. Scripture made some observations in the Yale psychologic laboratory. In Prof. Ladd's report of these joint observations[1] the elements of the appearance were not fully stated and no contribution to the elucidation of its nature or causes was made. I have improved the first opportunity of leisure which has been presented to me for a study of the interesting phenomenon and now present a description with a statement of some of the principles involved in its explanation.

THE PHENOMENON DESCRIBED.

If, in the midst of a somewhat broadly extended surface of a given color, a narrow stripe of complementary color is seen the narrow complementary color stripe, when viewed with a fixed gaze, will be eliminated from the field to be replaced by the color of the more extended surface. With certain color combinations the phenomenon is more easily observed than with others, and the "fixed gaze" must assume a character which it is difficult to describe but which is absolutely necessary to the color conversion.

Figure 1 shows a square of green surface, the predominant color, in which is a narrow band of red, the subordinate color, enclosing an oblong portion of the green surface.

The whole figure is divided into small squares by horizontal and vertical white lines which I have found to facilitate the induction of the phenomenon although they are by no means essential to it.

The colors of this particular figure, to be more explicit, are, for the broader expanse, blue-green, full color and red, full color. An excellent combination for the experiment is of orange-red and full color green. Many other combinations may be used, but as we shall see as we proceed, some are more favorable than others and with some combinations it is impossible to induce the phenomenon.

We may change the arrangement of the colors of a pair, making, for example, the red which in Figure 1 is the subordinate color, the predominant one as shown in Figure 2. In this case, however, the phenomenon is not induced with the same ease as in the first instance, and this rule prevails with all pairs that one element yields to the elimination as the subordinate color much more readily than the other.

The comparative illumination of the two colors of a pair is to be regarded. For example, if the composition is of blue and of orange-yellow the latter is so much more strongly illuminated that the phenomenon is difficult and generally impossible to induce. But if we employ a tint of blue and a shade of orange-yellow we have so modified the illumination as to render the induction of the appearance practical and easy. While it is possible to induce the conversion of the color with various complementary pairs properly toned as to the reflection of light,

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. Ladd: "Studies." Yale Psychologic Laboratory, 1898.

the excessive illumination of one of the elements in some complementary pairs renders the elimination of the subordinate color extremely difficult and in some instances impossible.

The reason for this appears when we consider that the luminosity of the red, such as is used for Figures 1 and 2, is, according to Vierordt, exactly the same as that of the bluish-green of these figures. These two colors constitute the pair which lends itself most readily to the phenomenon. On the other hand, of the complimentary pair, blue and yellow-orange, the latter, under circumstances of good light, has about sixteen times more illumination than the former.

While for the perfection of the experiment complementary colors are to be used, some other strongly contrasting colors may be employed with a more or less approximately successful result. Thus, a full red band in a field of full blue color will become very nearly of the color of the broader field, yet in this case there remains, to some extent, the phenomenon of simultaneous contrast of which mention will be made later. In all these experiments the band of subordinate color should be narrow. About two millimeters is a favorable width in a square of the size shown in Figures 1 and 2, and it should be surrounded on all sides by the predominant color.

I have already remarked that I have found that breaking the larger surface and the bands into small squares by white lines promotes the ease of inducing the change of color of the band. Why this is so I am unable to explain, unless, as it will be seen as we advance, it may be easier to adjust the accommodation for the white lines which requires an effort in excess of that for the red surface and less than that for the green and that thus one may be aided in adjusting the accommodation for a point between what would be the point for clearest adjustment for the red and that for the green, an act which we shall see is necessary to the success of the experiment.

WHAT IS THE EXPLANATION?

In explanation of the phenomenon we may first consider in connection with it several known principles which might be suggested as causes, but all of which, on careful examination, we shall have to reject. We may premise that it is not a color illusion but an objective phenomenon.

Let us consider first the principle of simultaneous contrast. The principle has been stated as follows: "If we look simultaneously on two stripes of different tones of the same color, or on two stripes of the same tone of different colors placed side by side, if the stripes are not too wide, the eye perceives certain modifications which in the first place influence the intensity of the color, and in the second, the optical condition of the two juxtaposed colors respectively. . . They will appear as dissimilar as possible, both in the optical composition and in the height of their color."[2]

In all experiments of simultaneous contrast which are mentioned in works on color we find that the results differ absolutely from the phenomenon of conversion of color under consideration. For example, if orange and green are placed side by side the orange assumes a more brilliant red and the green a more luminous bluish green.

In Figure 3 we have an illustration of the principle of simultaneous contrast in which exactly the same colors as those which I have used in the experiment of conversion are employed. In Figure 3 the red central disc is too broad in proportion to the extent of the predominant field of green to permit of the conversion except with the greatest difficulty, but the phenomenon of simultaneous contrast is at once seen in the lighting of the green with a yellowish luminosity and a deepening of the red.

In the phenomenon of conversion under discussion if the predominant color is green, as in this case, this color will remain without modification, while the red will be completely eliminated and replaced by green of the exact shade of the general field. We may without further consideration dismiss this principle as an explanation of our phenomenon.

So also the principle of successive contrast or after images of complimentary colors must be rejected and the suggestion of fatigue of the retina need not be considered. Then also we may eliminate the principle of irradiation since irradiation becomes more marked in proportion to the contrast in illumination of the elements of objects and background, whereas in the case of the color phenomenon under consideration a certain degree of uniformity of illumination of the two colors is essential to its manifestation.

Our phenomenon reminds us of that known as the phenomenon of Purkinje and of that of Troxler, which last, however, is less a phenomenon of color than of form. Perhaps the experiment most nearly comparable to this is that of Ragona Scina. These and several known principles, when carefully considered, afford no explanation of our phenomenon, nor does it find a place under any category of phenomena which, so far as I have learned, have been heretofore described.

PRINCIPLES INVOLVED.

I venture to suggest two principles which are undoubtedly involved in the phenomenon and which appear to me to be elements in its explanation. They do not, however, complete the explanation, but lead, probably, toward it. Of these two elements, which I think may properly be included in the series of causative principles contributing to the phenomenon, the first to be mentioned is the difference of refraction of the various colored rays entering into the experiment.

Owing to the difference of wave lengths of the two colors which may be employed the refraction of one set of rays as they pass through the media of the eye must be greater than the other. Sir Isaac Newton observed that, with the source of illumination at six feet from his lens, blue rays converged an inch and a half nearer to the lens than red rays. Hence, if the accommodation of the eye were to be adjusted precisely and fixedly for the green rays of Figure 1, the red rays would only be converged for a point considerably behind the retina.

This brings us to the second element which may safely be regarded as contributing to our phenomenon. It is the adaptation of the eye through the act of accommodation to a place in advance of the surface on which the two colors are imprinted. If the accommodation is thus adjusted in looking at the two colors let us suppose those of Figure 1, with the green rays converged somewhat in advance of the retina and the red rays for a point which would lie somewhat behind the retina, a phenomenon will occur which is of much interest. It will be seen by examining the diagram, Figure 4, that the green rays will twice cross the red ones and reach the retina diffused.

What happens as the result of this crossing of rays

2. Chevreul: "Color," p. 71.

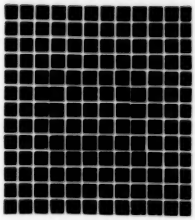

Figure 1.

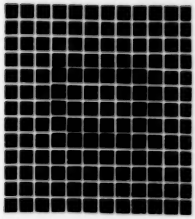

Figure 2.

Figure 3.

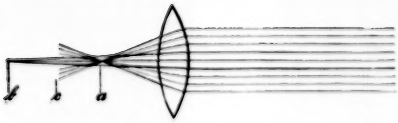

Figure 4.

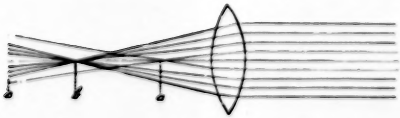

Figure 5.

is a question of difficulty as well as of interest to which we may refer when we have studied the phenomenon under other circumstances.

If we reverse the relation of the colors in Figure 1, using the green for the narrow interior band and the red for the greater surface, as in Figure 2, a complication at once arises. The conversion which, with the first arrangement, was induced with ease now becomes a matter of very considerable difficulty, and many persons who succeed in effecting the conversion with the first arrangement are unable to accomplish it with the second. Since we have the same colors and the same comparative illumination the question naturally arises why should there be greater difficulty in one case than in the other?

If it is true that the difference of convergence of the two classes of colored rays and the act of accommodation are elements in our problem we may receive an answer to the question, and it is the only answer that has occurred to me, from examining the diagram Figure 5, where the complications at once make themselves manifest.

Here the relations of the colored rays are the reverse of those in Figure 4. The red rays which converge only at the longer distance from the lens now occupy the outer ranks in the groups of rays approaching the eye. The now central green rays converge first and the red peripheral rays pass them by at first without crossing. It is only after the green rays have converged and have become again diffused that the first crossing could occur, and a second, if it should occur at all, could only occur behind the point of convergence of the red rays.

The difficulties then of inducing similar conditions of retinal impressions when the relations of the color spaces are reversed can be readily seen, and this principle holds good for all color pairs. In every instance the color whose wave length is shortest and therefore whose rays converge most is the color which, as the predominant or outside color, is best adapted to the experiment, while the companion color as the predominant one always presents a difficult combination and with some pairs in which the conversion can be made with the longer wave color as the subordinate it is quite impossible to induce the conversion phenomenon when the shorter wave color is subordinate.

These two factors, the differences of the refractive character of the two colors and the adaptation of the eye through the accommodation to certain conditions of refraction may, it would appear, be accepted as elements of the phenomenon, but there remains a factor or perhaps more than one factor still undetermined.

Some recent experiments may suggest the direction in which we are to look for the missing element or elements. On my library table stands an electric lamp enclosed in a large globe of corrugated glass. I take from a sheet of transparent "isinglass," a gelatine material such as confectioners use for enclosing bonbons, a strip an inch and a half wide by about five inches long. I hold it before my eyes and look at the globe. It is a rich, brilliant bluish-green. I take from another sheet a strip of similar proportions, and on looking at the globe through it the globe takes on a full deep red color. I now place one of these strips on the other, and on looking through find that the globe presents a deep red color, with the illumination so greatly reduced that the corrugations can hardly be seen and a sheet of white paper on the table near the lamp is so indistinctly seen that its borders can with difficulty be made out. All this is exactly as we should expect. I now take a strip of red about three millimeters wide and an inch or two inches long and place it on the original green strip. At first I see the general form of the globe of a fine green color and across it a dark red stripe through which no details of the surface of the globe are seen.

Presently, as I make an adaptation of the accommodation, the red stripe becomes green of the same color as that of the general appearance of the globe, but while not appearing of a lighter tint, it has a more pellucid and transparent appearance and is in fact more transparent, for the corrugations of the glass are seen more plainly through the layer of red and green than through the single layer of green. The corrugations also appear somewhat magnified, and I seem to see them not only through the transparent window but in advance of it.

Again, with a steel punch I make a circular opening in the broad strip of green and in it insert a disc cut by the same punch from the red. In the back of a large camera I place an electric light and in place of the lens a screen with an opening one-fourth of an inch in diameter. In front of this is a screen of white paper. If, holding a strong lens in my hand, I condense the beam of light to a focus on the screen and then bring it slightly backward toward the camera and then interpose the isinglass strip with the little disc of red exactly in the axis of the lens there is on the screen a small image of the red disc with a surrounding of green, but moving the strip backward and forward, keeping the little disc in the beam of light, I find, first, a point at which only a bright green beam passes through the strip with only a faint pink blush much diffused and hardly discernible in the field of green, and second, at another point, a green expanse surounded by a halo of red.

In the last instance we have, of course, a dispersion of the red rays. In the first instance there is a dispersion of the green rays which come to occupy a central as well as a peripheral position. In what manner the red rays are modified, whether by the ascendant influence of the other rays as, for example, when we look at the rotating Maxwell's disc in which, of the two colors red and green the latter occupies 80 per cent. of the surface, no suggestion of red is seen and the green is so slightly modified that the modification is with difficulty discernible, or by a modification from some form of non-destructive interference I am not ready to assume.

While the experiment with the lens fails to reproduce the conditions in the eye in an absolute manner, it approaches it very nearly.

DISCUSSION.

Dr. Charles H. Williams, Boston, showed some cards to uphold his suggestion that the explanation of this phenomenon depends on chromatic aberration and retinal fatigue.

Dr. Nelson M. Black, Milwaukee, remarked that the bleaching effect of various colors of the spectrum on the visual purple may help to account for the phenomenon, especially as Dr. Stevens states that "in every instance the color whose wave length is shortest is the color which, as the predominant or outside color, is best adapted to the experiment, while the companion color as the predominant one always presents a difficult combination." The greatest bleaching effect of the visual purple is produced by that part of the spectrum D and E, intensity diminishing with diminished wave length; red is least active, yellow slight, yellow-green greatest. Can not it be possible, he asked, that the long continued effect of gazing at the green outer color produces so much bleaching of the visual purple at the particular part of the retina that the rays fall on, that the red after a time fails to make any impression on that part of the retina. He first tried to produce the phenomenon while riding in a street car and could not succeed until the car stopped for a few seconds, when he succeeded, but the moment the car started again it was lost and he could

not obtain the result again until the car was quiet, the motion of the car shifting the position of the image on the retina constantly, preventing sufficient bleaching of the visual purple to allow of completion of the phenomenon. The same would apply to the isinglass experiment. With some pairs, in which the conversion can be made with the longer wave color as the subordinate, it is impossible to induce the conversion phenomenon when the shorter wave color is subordinate.

DR. F. H. VERHOEFF, Boston, thought that Dr. Stevens failed to point out the essential feature of the experiment, the point which makes it successful, and that is that the eyes must be fixed on one point continuously. If they change, the red flashes out again. That has been indicated by Dr. Williams. It can be easily shown that the accommodation has nothing to do with it and therefore that chromatic aberration plays no part. That can be assumed off-hand, because the diffusion circles would be so small in comparison with the lines in the diagrams as not to cause sufficient confusion to bring out the phenomenon. If one holds a pencil so that it is interposed between the eye and one edge of the red square and looks at it steadily the phenomenon takes place, and if one removes the pencil the red flashes out. If accommodation played any part the whole square would be invisible when the pencil was removed.

DR. EDWARD JACKSON, Denver, stated that he was not satisfied that the explanation of this phenomenon had been given, and he had no explanation to give, but he believed that one factor has not been alluded to, something that comes nearer to suppression of the image of one eye than anything else. Dr. Stevens alluded to it, but did not give it prominence. It is more like the suppression of one image when using one eye with the microscope or ophthalmoscope, except that there is suppression of the visual field. Against the view that it is due to fatigue of the retina is the idea that while the eye is kept perfectly steady, so far as one can judge by the white lines in the figure, the red area on the green background comes back again. Now if that were due to retinal exhaustion why should it come back? There seems to be something here that is not explained by either of the theories offered or by any of the relations of different colors to each other. Disturbance of fixation may have a decided influence on the matter of suppression. In a good many people it is difficult to produce diplopia. By moving the glass they may be able to recognize the two images because the motion throws it on a little different part of the retina and they can recognize it. Both fixation and movement may in this way influence perception.

DR. MYLES STANDISH, Boston, said that the phenomenon described does not always occur. When he looks at the green image with the red band in it the phenomenon occurs as described, but when he looks at the opposite one, the red field with green band, it does not. He considers that the phenomenon is different with different people.

DR. GEORGE T. STEVENS, New York, said that the very interesting designs presented by Dr. Williams in every instance represent the rivalry between the two eyes, but that in the phenomenon he had shown it does not make any difference whether two eyes are used or one. He did not think that fatigue of the retina plays any part in the experiment, because some people make this conversion within less than a second, and it would seem to require more than that time to produce fatigue of the retina. Dr. Stevens has often tried to convert the larger circle to the smaller and could never do it, and Dr. Standish is the first one he has found that could.

Etiology of Neurasthenia.—In 103 private cases T. D. Savill finds that 69 were due to various abnormalities of the digestive tract, 3 to other abdominal conditions, 10 to septic or toxic conditions, 4 to circulatory troubles, 3 to phthisis, 4 to nervous fatigue, 2 to emotional and traumatic shock, and 8 to indeterminate causes. Autointoxication due to constipation and disordered digestion from insufficient mastication appears to be the chief cause of neurasthenia. Pyorrhea alveolaris and premature decay of the teeth, he states, play an important rôle in the production of this disease.—*Clinical Journal*, June 6, 1906.

CASES OF SPONTANEOUS INTRACRANIAL HEMORRHAGE ASSOCIATED WITH TRIGEMINAL NEVI.*

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From the unfortunate circumstance that capillary nevi, the "port-wine marks" of the vernacular, occur with especial frequence on the face, their appearance is but too well known and there are few of us who can not recall among friends or acquaintances instances of this lesion.

There is a topographical peculiarity of these vascular stains, however, which has received but little attention from writers in English. This peculiarity lies in the close correspondence which often exists between their field of distribution and the skin fields sensitized by one or more of the main divisions of the trigeminal nerve; for the blemish often demarcates with considerable accuracy the territory of the ophthalmic, maxillary or mandibular branches and in exceptional cases may even outline the trigeminal skin-field in its entirety.

The metameric boundaries of the nevus are not always anatomically exact, for the stain may to some extent overlap the adjoining fields or even cross the midline; but they may be said to be as topographically exact or even more so than the boundaries which can be mapped out after an eruption of trigeminal herpes, the cutaneous manifestations of which are now known to be secondary to a lesion of the Gasserian ganglion.

This correspondence in topography between birth marks and segmentally innervated skin fields is sufficiently close to suggest that a prenatal lesion (infectious or developmental) occuring in the ganglion or one of its competent parts, may have been responsible in some way for the production of the defect; just as in adult life the acute lesion of a dorsal-root ganglion, whether spinal or trigeminal, may lead to the so-called trophic changes of zoster over its field of skin distribution.

Though this observation was first made years ago by Bärensprung, it seemingly has not been carried beyond the pages of an occasional monograph, and in most text-books of dermatology and neurology it receives no mention. This may be due to the fact that Bärensprung's views have not been accepted by all writers, some of whom, particularly in the case of nevi occurring on the body and limbs, have failed to find sufficient correspondence with the segmental fields to justify their being regarded as of metameric origin. Consequently, other hypotheses (such as their relation to Voigt's lines or to vascular rather than to nervous territories) have been advanced to account for the configuration of the lesions. There can be little doubt, especially through the evidence furnished by the vascular nevi of the face, that there is much in favor of Bärensprung's view.

In this paper I shall record three cases of trigeminal nevi in which have arisen certain complications, due, if my interpretation of them is correct, to the fact that the cutaneous lesion may be accompanied by a similar condition of vascularity of the dura mater; and it is suggestive that this membrane is also sensitized by filiments from the same nerve which innervates the cutaneous areas.

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

CASE 1.—*Extensive nevus, involving principally the right trigeminal territory; right intracranial hemorrhage, leading to contralateral spastic hemiplegia; second hemorrhage, leading to hemianopsia; epilepsy; postmortem examination.*

Patient.—W. C., aged 4, was referred to me in May, 1904, by Dr. E. F. Cushing, of Cleveland.

History.—The child's parents are living and well, also two elder sisters. His birth had been normal, with no attendant difficulties. At the time of birth the child's skin was disfigured by a vascular birthmark of wide extent. It covered the entire trigeminal distribution on the right side of the face, and on the left side corresponded with the field of the third division of the nerve. The nevus was bright-red and sharply outlined. There was also a patch on the right buttock. During the first two years of life the excessively vivid color gradually faded from these areas, though they still remain clearly defined, particularly during cold weather or when the child cries. Some exophthalmos of the right eye was also present at birth, but this, too, has largely subsided. With the exception of a light attack of measles the patient was well in every respect until he was 13 months old.

In September, 1902, suddenly and without warning, he had a series of convulsions, which began in the left hand, extended to the left leg and finally involved the entire body. The first of these convulsions came on immediately after his daily bath. They were associated with a rise in temperature to 106 degrees. When these seizures ceased it was found that the child's left side was paralyzed. In the next few weeks after this sudden illness he had several other similar but less severe convulsive seizures.

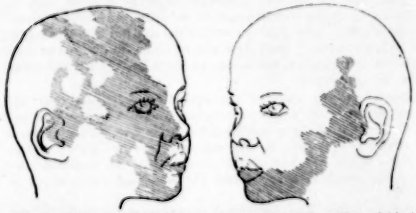

Fig. 1.—Case 1. Shaded areas show extent and outline of birth mark. Entire trigeminal field on right, with enlargement of eye; mandibular division on left.

During the following year he was practically free from convulsions and largely regained the use of his paralyzed arm and leg. At 17 months of age he began to walk, though with considerable limp, and there was evidence of a general weakness of the left side. The arm and leg were somewhat spastic. In December, 1903, there occurred abruptly, after the administration of an enema, a second series of left-sided convulsions, also associated with high fever. Ever since he has had more or less marked twitchings on the left side of the body.

Again in April, 1904, he had another series of attacks which were similar to the initial ones and which left him hemianopic. Since then isolated seizures of an epileptiform character have become numerous. These seizures are of greatly varying intensity: the least are mere twitchings, the more severe begin as left-sided spasms, when the child falls and remains unconscious for a few moments. They have varied in number from seven to ten a day since that time. The child is irritable, but seems to be in the best of general health. He requires constant care, owing to the frequency of his attacks and his liability to fall during them.

Examination.—Physical examination showed a child well-developed physically, but possibly somewhat backward in his mental condition. His parents and physician had not considered that there was anything seriously wrong with his intellect. He had learned to talk well, his memory seemed good and he played like the other children in his nursery.

Over the head and face, in the areas shown in the accompanying illustration (Fig. 1), there were fused patches of a bluish-red color, the so-called "port-wine birthmark." The child's head was normal in size and regular in outline. The right side of the face, however, that corresponding to the more extensive nevus, was somewhat larger than the left, the lips somewhat thicker, the development of the bones apparently somewhat greater and the eyeball considerably larger than on the opposite side. Not only was the globe of the eye larger, but the iris was 2 or 3 mm. greater in diameter than the iris on the left. The eye, furthermore, had a peculiar color. It looked like the china eye of a doll. The child apparently had some vision in this eye, but there was a question of his ability to see objects on his left side (homonomous hemianopsia?). The nevus on this side extended well up toward the vertex of the skull. The left hand and leg were somewhat smaller than the right and were not used particularly well. There was considerable spasticity and the reflexes were greatly increased. There were peculiar throwing movements in the left arm, and the attacks of petit mal, as well as the more severe convulsive seizures, began in this arm.

The suggestion was offered by the child's father, himself a physician, that the cutaneous nevus might possibly be associated with a nevus of the dura, and that the two critical periods of unconsciousness with fever and convulsions, one of which had preceded the hemiplegia, the other the hemianopsia, had been due to intracranial hemorrhages originating in the vascular membrane. We knew nothing at this time of the pathology of these conditions, nor were we assured of the fact that a trigeminal nevus might be associated with such a vascularization of the meninges.

Operation.—Thinking that possibly the child's epileptiform seizures might have a definite organic source, due to the absorption and organization of a clot which had originated in this way, we determined to operate, with the hope of finding and of separating some cortico-meningeal adhesions. Consequently, on May 30, 1904, under chloroform anesthesia, an attempt was made to turn down a bone flap and to expose the right hemisphere. Owing to the extreme vascularity of the scalp and the bone, this operation had to be abandoned. The bleeding from the diploë and dura was so tremendous after the removal of a single button of bone that it was controlled with difficulty, and without further attempt to open the cranium the button was replaced and the wound reclosed. The wound healed promptly and the child returned to his home.

Subsequent History.—The seizures continued as before. On Nov. 1, 1904, he contracted diphtheria, and after a serious illness passed into a seemingly normal convalescence. For several days his throat was clear, his temperature normal, and he was sitting up in bed. Suddenly one night his temperature shot up to 104 degrees, and there appeared an extraordinary swelling of one ear, together with an enlarged chain of glands down the corresponding side of the neck. The condition suggested an angioneurotic edema or an erysipelatous infection. The next morning the ear, together with the cervical glands on the opposite side, was correspondingly affected. Serious convulsions set in, and the boy died twenty-four hours later. During these two days an enormous enlargement of the liver took place, the lower border of the organ extending as low as the umbilicus.

Autopsy.—An autopsy was performed by Dr. Perkins of the Lakeside Hospital. The tissues generally showed evidence of an extremely active terminal infection. The liver had the appearance of a huge fatty liver. The glands over the entire body were greatly enlarged.

Our chief interest, however, lies in the condition of the brain. The left hemisphere was to all appearances normal; the convolutions were well-developed and presented the usual topography. The right hemisphere, however, was much smaller, and the meninges covering it were unduly vascular, in all probability representing a nevoid condition similar to that present on the skin. It was noticed, also, on removing the calvarium that the bone on the right side was soft and spongy and the diploë unusually vascular. Over the right occipital lobe, and also over the central region of the right hemisphere, the convolutions were atrophied and the overlying membranes thickened. There were adhesions between these areas and the overlying dura. The cerebellum was somewhat asymmetrical, the left hemisphere being considerably smaller than the right.

The right crus was small, and on cutting a fresh section of the cord the left pyramidal tract was seen to be smaller than the right. Furthermore, corresponding to the lesion of the right occipital lobe, the right optic tract was macroscopically smaller than the left. More important than this was the fact that the Gasserian ganglion on the right side was exceedingly small and Dr. Perkins found that there was little more than fibrous tissue to be removed from the situation of the cavum Meckelii.

CASE 2.—*Birth mark limited to the ophthalmic division of the right trigeminus; intracranial hemorrhage; epilepsy; craniotomy after ligation of external carotid; recovery.*

Patient.—Willie K., aged 5, was referred to me by Dr. E. B. Rhodes of Cleveland.

History.—The child was the first-born of healthy parents possessing an excellent family history. The labor was long and difficult, finally necessitating an instrumental delivery. The child was born asphyxiated, and revived only after prolonged efforts of resuscitation. There was present at the time of birth an extensive vascular nevus over the right frontal region. The child was breast fed, and during its early life seemed normal in all respects. It grew and developed rapidly; was a bright and natural child, and had no untoward symptoms until it was ten months of age.

In July, 1901, after a period of several hot days, there was a sudden onset of convulsions involving the entire body; the child was unconscious, had a high fever, temperature 107 degrees, and was considered seriously ill. For a period of two weeks he continued in a critical condition, having from twelve to twenty-two convulsive seizures daily. Following this acute

Fig. 2.—Case 2. Shaded area shows outline of birth mark limited to ophthalmic division of trigeminal field on right with enlargement of eye.

illness he continued to have a series of milder attacks, epileptiform in character. They were of sudden onset, involving the entire body, always with a period of unconsciousness. The child would foam at the mouth and would pass urine during the convulsions. For the past three years these attacks have been in a measure controlled by bromid therapy. He has grown to be a nervous, high-strung, excitable child, but apparently possesses a normal intelligence.

In January, 1906, the child had an active return of his convulsive seizures. There was a sudden onset of the attacks, which left him unconscious for several hours, during which time there were repeated seizures, limited for the most part to the left side of the body. They were checked by the administration of chloroform and heavy drugging.

He recovered from this period of threatened "status," and two weeks later was admitted to the Johns Hopkins Hospital in the hope that an exploratory craniotomy might reveal some adhesions, the result of an old lesion, the separation of which might benefit his condition.

Examination.—Feb. 2, 1906. Physical examination revealed no developmental abnormalities beyond the birth mark to be described, and a somewhat deformed pinna of the right ear. He was a well-grown child for his age, well nourished, and of a good color. His mental activity and acquirements seemed of a normal order. He was very nervous and unceasingly restless. An unexpected noise would make him start and twitch. During sleep he would keep his head jerking strongly from side to side, sometimes for hours at a time.

There was a congenital "port wine mark" which corresponded fairly well with the skin field of the ophthalmic division of the right trigeminal nerve (Fig. 2). There were no other abnormalities or similar stains elsewhere on the skin. The nevus was of a dusky, bluish red color and its hue had not faded perceptibly since birth. It was a true capillary nevus without elevation or pigmentation of the skin. The mark had an irregular outline, including the entire side of the nose, and even overlapping slightly the midline; including also the entire upper lid, whence it spread upward over the brow and forehead, into and beyond the hair margin as far as the crown. On the forehead it extended from the midline to slightly beyond the external angular process and temporal ridge of the frontal. Its outline was somewhat irregular, and within the field were a few small islands of normal skin. It evidently extended into the nose, as the mucous membrane on the right side bled often and after slight injuries.

The right eyeball was larger than the left, and the palpebral cleft wider open; the iris had a diameter of 1.5 cm., whereas on the left it measured 1.2 cm. The sclera on this side was more bluish in tint than the other, and the eye had the same "china eye" appearance described in Case 1. The pupils reacted normally to light, and an ophthalmoscopic examination by Dr. Bordley showed the media to be clear and without refractile errors. There was no increased vascularity of the fundus and the disc appeared normal in all respects.

The examination was otherwise negative. There were no sensory or motor disturbances to be made out. The reflexes, though active, were perhaps within normal limits. The results of delicate sensory tests over the territory of the nevus were difficult to interpret, but so far as could be told normal sensation was preserved.

Operation.—In spite of the operative difficulties that had been encountered in the exploration of the first case, it was determined to make a similar attempt in this patient after a preliminary ligation of the external carotid artery, a step which would, it was hoped, temporarily devascularize not only the superficial nevus, but the presumed dural nevus as well.

An operation was performed accordingly on Feb. 5, 1906. The external carotid was divided between two ligatures and the wound closed. There was an immediate blanching of the superficial nevus, which did not return to the former bright color until forty-eight hours later.

A cranial tourniquet was applied, and the incision for a large osteoplastic bone-flap was outlined, the central part of the opening being designed to correspond with the motor centers of the hand. This necessitated the inclusion of part of the nevus within the anterior leg of the incision. There was no bleeding of any consequence from the scalp or the bone, and only when the flap was elevated was any troublesome hemorrhage encountered. When the flap was turned back an unusual vascular condition of the anterior two-thirds of the uncovered dura was disclosed. This area, so far as could be told, corresponded in a measure with the outline of the cutaneous nevus, and was supposed to represent the field of dural innervation from the ophthalmic division of the trigeminus. There were many large vessels (veins alone, for the arterial supply was cut off) covering the area, connected by a network of smaller vessels, a condition that would have been regarded as an "angioma" of the dura had we not looked forward to the possibility of finding some such state of abnormal vascularity. Many of the large vessels evidently had emissary communications with the vessels of the diploë, and many of these had been torn when the flap was elevated. By the judicious use of cotton packing, bleeding from these points was controlled until the dura could be opened more posteriorly, where it was normal in appearance. Then some of the bleeding points in the nevoid portion of the dura were ligated by through and through sutures passed on curved French needles.

When the dura was turned down so as to expose the hemisphere a great number of adhesions were found between this

membrane and the leptomeninges over the cortex. Most of these adhesions were delicate and non-vascular, breaking on slight tension; some of them were more dense and had to be sectioned with the scalpel. Connecting the precentral convolution with the dura above it, at the center of the exposed area of cortex, was one particularly dense bundle of adhesions. Cortical stimulation of this area elicited movements in the hand and wrist. The dura was then accurately sutured in position, the bone-flap was replaced, the scalp closed by careful approximation of its edges, and the dressing applied before the tourniquet was loosened. The sutures were removed on the second day. Healing was without reaction.

Postoperative History.—The child has been very greatly benefited. His nervousness has largely disappeared, and he has so far been free from attacks.

Although the former degree of vascularity of the cutaneous nevus, owing to free anastomosis of the superficial vessels, had returned by the end of the second day after the carotid ligation, it is hoped that collateral circulation in the meninges is less free, and that there may be a permanent diminution of blood supply to the nevus there. This may lessen the liability of a second hemorrhage from this source.

CASE 3.—*Extensive nevus in a left-handed child, involving among other fields, the right trigeminal territory; right intracranial hemorrhage leading to contralateral spastic hemiplegia; idiocy; epilepsy.*

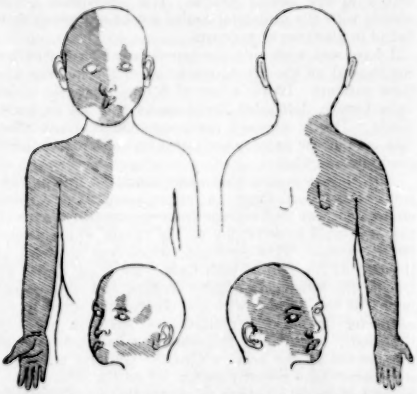

Fig. 3.—Case 3. Shaded areas show areas of vascular nevus. On right, entire trigeminal field with hypertrophy of face and eye; also field of Civ to Tv, with hypertrophy of arm. On left, small patches over each of the three trigeminal divisions.

Patient.—G. W., aged 8, was seen some months ago in consultation with Dr. Cuthbert of Washington.

History.—This, the second child of healthy parents, was born with a vascular nevus of wide distribution, covering almost the entire right side of the head and face, as well as the entire right arm and shoulder girdle. There were some patches also on the left side of the face.

With the exception of this cutaneous blemish the child was apparently healthy in all respects and developed normally until nine months of age. One evening while laughing and playing with its mother the child suddenly uttered a loud cry, fell back unconscious, and had a severe convulsion. He remained in a critical condition for several hours, and on recovering consciousness was found to have a complete left-sided hemiplegia. A diagnosis of intracranial hemorrhage was made at this time by the family physician. After a critical illness the boy so far recovered as to become a growing child, but he has since remained sadly crippled, both mentally and physically. There was some slight return of power of movement in the left side, and he learned during the course of the next year to take a few steps. For a year or two there was also some slight mental improvement, and by the time he was three years old he could talk a little, and seemingly had some power of understanding, but since that time there has been a series of progressively severe convulsive seizures, and, what with the effect of these attacks and an excessive administration of bromids, he has retrograded markedly. He has not spoken any intelligible syllables for the past two or three years; he does not recognize his parents; he is totally helpless. At present his epileptiform seizures occur at frequent intervals, often many in the twenty-four hours. These attacks are in a measure Jacksonian in character. Initiated by a cry, they begin with the turning of the head and nystagmoid movements of the eyes to the left; then follow twitching movements in the left side of the face and left hand before the convulsion spreads generally over the body.

It is noteworthy that before the first attack the child was recognized as being left-handed. There is a familial tendency to left-handedness, both parents as well as their other children having this trait.

Examination.—Physical examination shows a well-developed and nourished, but seemingly mindless child. He is irritable, restless, noisy when hungry, but seems to take no cognizance whatsoever of his environment. He does not recognize his parents or the attendant who has cared for him for some years.

Owing to the unsightly nevus his appearance is most startling. With the exception of one or two small patches of normal skin this nevus involves the entire trigeminal territory of the right side (Fig. 3). Here its color is most pronounced, being of a bright, reddish plum color and exceedingly vascular. To the touch the area feels quite hot. In some places the skin is somewhat thickened and elevated, apparently by larger subcutaneous vessels. Over the right side of the skull there is a palpably flattened area which would correspond with the central convolution and presumably indicates an underlying cortical defect. The deeper tissues of the right half of the face are thickened (hypertrophied?). The right half of the upper lip, the ala nasi and the eyeball are larger than on the left side. The diameter of the iris measures 2 mm. more on this side than on the normal one. The pupil also is considerably larger; both pupils react normally to light. The sclera has the same bluish tint and the eye in general the same "china-eye" appearance noticed in the other cases. There seems to be some enlargement of the bones on the right half of the face.

Over the skin on the left side of the face are several isolated patches of capillary nevus, less vivid in color than the large stain on the opposite side. There is a clear zone of normal skin around the neck, corresponding to the cutaneous distribution of the second and third cervical segments, but below this strip there is a solid area covered by a bright vascular nevus which extends from above the clavicle to below the nipple, including the entire upper extremity and running from mid-dorsum to mid-venter on the right side.

The left arm and leg are rather spastic and somewhat undeveloped, so that comparative measurements between the two sides are of no value. Nevertheless it is apparent that the right arm and hand, in comparison with the size of the rest of the body, are hypertrophied. The patients, furthermore, had noticed that this arm was larger than the left before the hemiplegic stroke occurred.

Remarks.—Even were there any certain prospects of modifying by an operation the character and severity of the epileptiform attacks in this unfortunate child, the gain would be trifling in view of the unalterable physical and mental deficiencies which are present, that no one could seriously contemplate its undertaking.

An operation performed when the child was nine months old, and a few days after the hemorrhage took place, might possibly have prevented these late complications by removal of the clot. It is improbable, however, in this case, that such a procedure could have had a successful termination. Operations for hemorrhage of this sort in infants or in the newborn are critical enough without the additional complication which an approach through a nevoid area would occasion.

DISCUSSION AND REVIEW OF LITERATURE.

The histories of three children, all of whom were born with vascular nevi which conformed with the territory of one or more divisions of the trigeminal nerve, are thus recorded; and in view of the facts mentioned in the paragraphs introducing this paper, we may with some justification regard these nevi as the result of some process, a congenital defect or intrauterine lesion, which has primarily affected the ganglion or its sensory root. In Case 1 this process may be considered to have involved all three divisions of the right trigeminus, together with the mandibular division on the left; in Case 2, merely the ophthalmic division on the right; in Case 3, the entire trigeminus on the right, the same nerve, in part, on the left and the lower five cervical and upper five or six dorsal root ganglia also on the right side.

It is well known from anatomic and physiologic studies[1] that the dura mater is sensitized almost entirely by filaments from the three divisions of the trigeminal nerve, and even had we not been assured by the post-mortem findings in Case 1 and by the operative ones in Case 2 that this membrane also shared in the distribution of the vascular nevus we would nevertheless have been led to this assumption by the history given by each patient of a presumably spontaneous cortical hemorrhage.

Had there been no obvious vascular lesion on the skin to suggest this view, the cases would possibly have been regarded as instances of spastic hemiplegia of encephalitic origin, for an infectious process is regarded as the more common cause of the spastic palsies which date from infancy; and these children were afflicted at thirteen months, ten months and nine months of age, respectively. Owing to some surgical experiences with cases of so-called "birth-palsy,"[2] I am inclined to the view that most, if not all, instances of spastic paraplegia or hemiplegia which date from birth are secondary to intracranial hemorrhage, accidental to parturition. And certainly some of the infantile cases as well—for example, those with an abrupt onset during a paroxysm of whooping cough—have a like etiology, namely, cortical bleeding from ruptured vessels.

In no one of the three cases here reported have we proof positive that the acute illness which led to the cerebral complications was due to a hemorrhage. Most of the evidence, however, points in that direction.

The brain and its envelopes removed after the death of the first patient show, on the side corresponding to the extensive birth mark, an undeveloped trigeminal nerve, a meningeal nevus, and two areas of cortical atrophy with local adhesions such as are often found after cortical hemorrhage from other conditions. In the second patient we were able to demonstrate the nevoid condition of the membrane and the trace of the old hemorrhage *intra vitam*. In the third case, regarded in the light of these other two, there can be no reasonable doubt but that there has been an extensive hemorrhage over the right hemisphere which in a left-handed child has seriously interfered with mental development. The flattening of the skull over the area of the central convolutions on this side gives further evidence of a large defect.

Since Bärensprung's original communication there have been several papers dealing in general with the topographical aspects of nevi of all varieties, vascular and otherwise, and among these the study by Etienne[3] may deserve particular mention. Such a perusal of the general literature of the subject as I have been able to make has brought to light the scattered reports of a few cases presenting complications akin to those described above, evidently due, it seems to me, to intracranial hemorrhage. Thus Lannois and Bernoud[4] have described the case of a young woman, 20 years of age, in whom the left side of the face was covered by a blood mark and the tissues were hypertrophied. When 3 months old, after a supposed fall, she had become hemiplegic, and subsequently grew to be a weak-minded epileptic. At the same time he briefly cited a second case with a similar history.

Galezowski,[5] in the same year, reported a case with an extensive vascular trigeminal nevus covering almost the entire face, and he called especial attention to an associated monocular enlargement which he likened to the condition of buphthalmos. The fundus in the eye was normal, but the appearance of the choroid led him to believe that this structure might also have been involved in the nevoid process. His description consesponds with the unilateral ocular conditions which were found in all three of my cases.

I have met with only one report in which the author commented on the nevoid condition of the meninges in these patients. It was a case of Strominger's,[6] in which an extensive, left-sided facial nevus had led to hemiplegia. Death occurred from some intercurrent affection, and at the autopsy the meninges were found thickened and vascular.

Although it is somewhat apart from the primary object of this report, there is a further aspect of these cases on which I can not refrain from commenting, namely, the associated hypertrophy of the tissues which underlie the nevus. This condition, which was apparent in the half of the face of both Case 1 and Case 3, has attracted the attention of many writers, and an excellent review of the subject, with the theories advanced to account for these local hypertrophies, has been made by Grimaud.[7] In my cases this condition was possibly most pronounced in the arm in Case 3. Guillain and Constellemont[8] have recently shown before the Neurological Society of Paris a patient in whom the nevus similarly was limited to the right upper extremity with much the same distribution as in my case and with a corresponding degree of hypertrophy. Many similar cases have been reported, particularly with enlargement of an extremity, less often with enlargement of half of the face.

CONCLUSION.

In conclusion it may be said that:

Vascular nevi occurring on the face show a tendency

1. "The Sensory Distribution of the Fifth Cranial Nerve," Johns Hopkins Hosp. Bull., 1904, vol. xv, p. 223.

2. "Concerning Surgical Intervention for Intracranial Hemorrhage of the New-born," Amer. Jour. of the Med. Sci., 1905. Since writing this paper I have operated on five other children a few days after birth. Two of them have had perfect recoveries; the others had a thick and widespread unilateral clot and all three succumbed.

3. Etienne, G.: "Des naevi dans leur rapports avec les territoires nerveux, etc." Nouvelle Inconog. de la Salpêtrière, 1897, vol. x, p. 263.

4. Lannois et Bernoud: "Enorme naevus angiomateux de la face avec hémiplégie spasmodique et épilepsie," Nouvelle Inconog. de la Salpêtrière, 1898, vol. xi, p. 446.

5. Galezowski, M.: "Naevus congénital sous forme de couperose occupant la face, le front et le cuir chevelu, avec buphtalmie monoculaire," Annales de Dermat et de Syphil., 1898, vol. ix, p. 242.

6. Strominger: "Angiom intins al hemisferului cerebral stâng," Spitalul, Bucuresci, 1905, vol. xxv, pp. 147-150.

7. Grimaud, Leon: "Hypertrophie partielle congénitale du corps avec nævus," Thèse, Paris, 1901.

8. Guillain et Constellemont: "Un Cas de Naevus du Membre Supérior avec Varices et Hypertrophie Osseuse," Révue Neurologique, 1904.

to conform in outline with the distribution of one or more of the main trigeminal branches.

These cutaneous nevi may be associated with some degree of hypertrophy of the deeper tissues of the face, with an enlargement of the eye, and finally with the presence of a corresponding nevoid condition of the dura mater.

This dural nevus may lead to a spontaneous hemorrhage during infancy, with consequences similar to those which follow the subdural hemorrhages occurring during the early months of life from other causes—epilepsy, spastic hemiplegia or even amentia.

Absorption of the clot may lead to cortico-dural adhesions which in favorable cases can be separated with benefit to the epileptiform convulsions, provided measures such as carotid ligation are taken to prevent complications from too great a loss of blood during the operation.

RADIUM IN SURGERY.*

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NEW YORK.

To present in brief form to this audience of practical surgeons the experience of three years' use of radium, I have chosen to demonstrate graphically by a few colored plaster casts the results that may be obtained. A few facts are worth more to us than pages of historical review or speculation.

I would not have ventured to present the subject had it not been my privilege to use a rather large quantity of the most powerful radium yet made. Therefore, a fair estimate of its efficiency can be given.

Discarding all weaker specimens, I have used:

15 centigrams Curie radium, strength	300,000
21 milligrams German bromid, strength	1,000,000
100 milligrams German bromid, strength	1,800,000

The working unit of the most powerful and pure radium manufactured is 10 milligrams radium bromid 1,800,000, and is best used in a small cell covered by a thin layer of mica. This, for obvious reasons, cannot be sterilized for introducing into tumors, therefore I have had six such cells emptied into one small thin glass tube, about one inch long, and scarcely larger than a match stick, and two more cells into another similar tube, blown a trifle larger at one end, and sealed hermetically. Two other cells I reserve for surface applications.

The beautiful specimens of Curie radium chlorid 300,000, I divided in two similar tubes, one of ten centigrams and one of five. With this preparation I have been able to give a fair test of the efficiency of radium, to compare results with early exaggerated claims, and establish some definite value for its therapeutic action.

From a large clientele I have chosen 125 cases for the test, representing 22 different surgical conditions, as follows:

Lupus	6	Granulated Lids	1
Epithelioma	30	Tuberculous adenitis	1
Cancer	40	Seborrhea of lip	1
Sarcoma	9	Hypertrophy of tonsil	1
Enchondroma	1	Ganglion of wrist	1
Pigmented mole	4	Dupuytren contraction	2
Melanoplakia	2	Cyst of jaw	1
Leucoplakia	2	Angioma of face	1
Ulcer of lip	1	Tic douloureux	1
Warts	11		
Keloid	2	Uterine fibroid	1
Goiter	9		127

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

Many of these I shall not speak of, as they are under observation, and not ready for report, though of the utmost interest. In all cases possible I have had careful microscopic corroboration of the lesion by Dr. Francis C. Wood and others.

Our greatest interest centers around the new growths, lupus, epithelioma, cancer and sarcoma. These represent in their incipiency a large overgrowth of cells normal to the part invaded or grafted on it.

It is of some interest to note at this point that the ordinary wart, small or large, is but an overgrowth of cells normal to the skin, and in every case where I have laid a radium tube on one, it has speedily disappeared through a process of retrograde degeneration of the mass of cells composing it.

Let us dismiss that thought as simply an illustration of the subtle influence of radium rays on morbid cell growths and turn our attention to lupus, epithelioma and carcinoma. From a clinical point of view these three shade into each other, and with lapse of months or years the slow growing forms become destructive, penetrating and carcinomatous.

In the lupus type I would class only five cases. One of these had, in large measure, become cancerous. From a practical standpoint one may place in the same class all the lupus and epitheliomata, for they are equally relieved by radium.

Thirty-five cases of these classes have been studied, and with most gratifying results. Not one has failed to show prompt healing action. Twenty have been cured, at least for the time, and with probability that many are permanent, but with a slight point or two of recurrence in some, which always has yielded to a short secondary treatment. Many of these were distinctly malignant epitheliomas.

They were variously placed on the head, face and shoulders. Some produced extreme deformity and offensive ulcers, but gave full, soft pink cicatrices. Nine recent ones are still under treatment.

Twelve cases involved the nose extensively; four the ear; five the forehead; four the eyelid; five the cheeks; and four the chest and scalp. On the whole they represent slow growing epithelial cancer, existing from two to twenty years. Some were so called baso-cellular epithelioma, and others with very active mitotic figures, but all yielded equally well, regardless of these microscopic distinctions. Some had invaded and eroded cartilage of the ear and nose—which healed equally well—others invaded and destroyed bone, and yet in some places yielded to the searching rays and healed over.

Little difference was shown in susceptibility to the rays, whether the disease was recent or of many years' growth. One of the most striking cases was an epithelial cancer of the lip and wing of the nose in a lady of 74 years, which had progressed for seven years, destroying the nostril, septum and part of the lip, down to the vermilion border.

It had resisted all forms of treatment, including Roentgen ray, well given for several months. The patient was too old and unwilling to submit to disfiguring extirpation and plastic operation. Radium tubes were laid on the disease with interposition of rubber tissue for one hour daily for seven days. Slight reaction was then noticed and nothing more was done. In two weeks the second cast was taken and the disease shows healing. In five weeks all evidence of disease was gone, and the ulcer, shrunken to one-quarter size, was entirely healed. More than ten months have passed and the

case remains perfectly well, with insignificant scar. Three casts of this case illustrate beautifully what the patient and her physician choose to call a miraculous cure.

Another, of the same type, referred to me by our chairman, Dr. Weir, had for two years been slowly destroying one nostril and the wing of the nose. As Dr. Weir said, an unsightly plastic operation would be necessary to repair the damage, and eradication would be doubtful. This was rapidly cured by three applications of radium tubes of 5, 10 and 20 minutes each.

Five exuberant and destructive epithelial cancers of the eyelids have yielded in the same way; two are cured, and the others, more recently treated, are approaching a cure. Such cases present to the surgeon a great relief from difficult and unsightly plastic operations with unsatisfactory final outcome. Some of the epithelial cancers originated as senile keratoses on the forehead, nose and cheek; and it was interesting to see all such early manifestations surely melt away under one or two applications. The difficulty of insuring successful outcome is in judging the exact dosage of radium treatment. Of this more will be said later.

The study of the cases of cancer in its graver form presents a worse picture and fewer favorable results. In 40 cases 28 were inoperable, 11 would have admitted operation, but were given a radium test, and 6 of these were subsequently operated on. The other 5 are so much improved that operation is hopefully deferred.

Of the 40 cases 3 were situated in the cheek; in the tongue, 6; tonsil, 1; parotid, 2; neck, 3; thyroid, 1; esophagus, 2; bladder, 2; rectum, 4; uterus 5; jaw, 1; glans, 2; lip, 1; breast, 7.

Most of the malignant growths showed more or less favorable retrograde changes at some stage of treatment. A few gave evidence of control; and I am encouraged to think that faulty use of this agent may be responsible for failure in some.

In several cancers situated on the mucous surfaces, such as the tongue, cheek and tonsil, I gave too severe treatment unwittingly, and produced temporary irritating effect, with partial destruction of the mass, it is true, but on the whole, I suspect an aggravation of the trouble. It would have given me satisfaction if I could have reported favorable outcome in the 40 test cases, of the grave form of cancer, but they must candidly be said to have yielded no results worthy to justify a statement that radium has established any claim to be a specific cure.

There is yet a possibility that in applying this wonder-working agent in some other manner than in this thin glass tube, we may obtain better results. To this end I shall continue to experiment, not forgetting that it was in the same sealed tubes that radium was so magically efficient in curing the epithelial forms of cancer.

There is one redeeming type of grave cancer which in some recent cases seems to promise good results, namely, mammary scirrhus. In seven such which I have critically treated, three were subsequently amputated for microscopic study, and showed characteristic retrograde changes, which explain the apparent excellent gain in four others recently treated, and which will be reported on a year hence. At the present writing these show encouraging condition.

Far more cheerful and inspiring are the results of radium treatment in a small group of sarcomas. A case of giant-celled sarcoma of the lower jaw, which had almost completely destroyed the bone at one side and replaced it by a soft tumor, was treated by me nearly 2½ years ago, with radium alone, and reported cured soon after,[1] was recently seen by me and found still well.

The retrograde changes from soft tumor back through ossification to almost a natural sized jaw bone with solidity, are unparalleled by anything I have ever seen in surgical work.

In a second case, where the jaw had been spontaneously fractured through a sarcoma, about the forward molar teeth and a bleeding tumor had grown upward into the mouth, pronounced by Dr. E. G. Janeway to be probably sarcoma, a rapid cure took place after several radium treatments, and the patient remains well after a year and a quarter. A third patient, who had a giant-celled sarcoma removed from her maxillary antrum, developed one in the lower jaw six months later. I removed this with apparent thoroughness by curette, though it involved the body of the jaw, all but the inner plate of bone, and applied radium on the bone for several days afterward. Six months have elapsed without recurrence.

From these experiences I would advocate treatment of this type of sarcoma by radium with confidence.

Another type of sarcoma has given the most brilliant result yet seen. A purple tumor occupied two-thirds of the lower eyelid, growing equally on the skin, on the mucous membrane, and upward between. Its growth had been watched at the N. Y. Eye Infirmary, and treated vigorously by Roentgen ray with no visible effect. It was of one year's growth and threatened serious consequences if not removed. It was referred to me by Dr. Peter Callan for possible effect of radium. Microscopic section showed round-cell sarcoma.

Two tubes were laid on it for one hour each day for four times, and then it was watched; at four weeks it was half gone, at six it was three-quarters absorbed, at eight weeks entirely cured. We have watched it critically for one year since it disappeared, and there has been no return. Not less remarkable is the fact that the skin and edges of the lid, as well as the growth of the eyelashes, are restored to normal, and one would not believe a tumor could have ever been present.

It is difficult to explain the reassembling of cells normal to the structures of the lid from the mass of tumor tissue in which they were lost. The same problem for the pathologist to explain occurs in the return to normal of the bone cells lost in the soft maxillary sarcoma just reported.

Another sarcoma of malignant type was an angiosarcoma of two years' growth, as large as the end of one's finger, inside the nasal fossa, with its base grown into the ala nasi, and beginning to show on the skin. This had been critically studied and treated by Dr. Lustgarten, New York, and found beyond control. It bled constantly. Four applications of strong radium are producing a rapid cure during two months of treatment, and there seems no doubt it will soon be well.

Two fine examples of spindle-celled sarcoma as large as an apple, one of the tibia and one of the sphenoid, have been thoroughly radiumized, and are being closely watched for two months with seeming arrest, but no retrograde changes as yet. I doubt its value in this class of tumors.

Rays of radium are essentially stimulating and irritating, and show two distinct effects; in moderate dosage, alterative, in excessive dosage, destructive. The former seems to me to be the efficient and elegant method. One

1. N. Y. Med. Record, 1904, August 27.

may produce degenerative necrosis by radium in any tumor tissue, and thereby set up autotoxemia, with temperature, toxic rash, bone achings, lymphatic engorgement, and other characteristic symptoms. I have seen at least six such coincident toxic conditions, lasting a few days, in over zealous radiumization of large growths of the tonsil, face, tongue and thyroid. In general this is undesirable. Two years ago I inserted a strong radium tube into the substance of a very large goiter in a hopeless case of exophthalmic goiter, with prompt and remarkable convalescence. The patient remains well and strong and has but an insignificant remnant of goiter left.

This led me to repeat the attempt in seven cases. Two others have shown its curative effect. One other has shown extreme radium action, with slight incidental thyroid toxemia, a molecular necrosis of a large portion of her huge thyroid. This sinus healed kindly and the resulting reduced size of the oppressive goiter is very satisfactory.

The results thus far obtained by me justify further experimentation, but not a claim as yet to specific benefit in all cases.

In applying radium to pigmented moles one readily obtains removal by induced dry necrosis. Possibly this may have a specific advantage over escarotics or the knife. The cicatrix is certainly softer and better.

CONCLUSIONS.

1. Radium action resembles that of Roentgen rays.
2. It differs specifically and will cure some cases promptly which resist the latter.
3. It is applicable to the interior cavities of nose and mouth, inaccessible to the Roentgen ray.
4. It is curative in most superficial epithelial cancers and lupus.
5. It has failed of curative action as yet in forty test cases of grave internal cancers.
6. It promises interesting results in other surgical conditions under study.

DISCUSSION.

DR. SETH GORDON, Portland, Me., asked Dr. Abbe whether he has ever used radium in Paget's disease of the nipple, which sooner or later becomes carcinomatous.

DR. ABBE said that he has used it in one case which was nearly typical, a chronic ulcer of six months duration. The ulcer was cured after two or three applications of the radium. The patient then went to Baltimore, where she saw a surgeon who advised removal of the breast, so that he lost the opportunity of further treatment.

DR. GORDON stated that he had a case in which he tried the Roentgen ray, but to no purpose. A friend asked Dr. Gordon to let him try radium. He tried it for three weeks every day, and finally sent the patient back saying that he believed that the treatment was not doing any good. Dr. Gordon afterward removed the breast and found it to be carcinomatous.

DR. ROBERT F. WEIR, New York, has sent several cases to Dr. Abbe and he has seen many of Dr. Abbe's cases and the results in these superficial tumors were very satisfactory so far as Dr. Weir's cases were concerned. After all, he said, it is the emphasis on the words immediate cure that is important. The Roentgen ray at first accomplished much for these patients, but the result was not a very lasting one. Whether the same thing will occur with the radium cure time must tell. Dr. Weir suggested that perhaps Dr. Abbe may bring forward instances in which the cure has passed beyond the time limit—possibly two or three years—and thus give us additional assurance concerning the value of this procedure.

DR. HEFFNER, Pottstown, Pa., asked Dr. Abbe how long he has been using radium and the cost of such a tube as he uses.

DR. ABBE stated that he has used radium for three years and has been very much impressed by several facts. The cost of the radium is large. The little samples he showed are worth about $10,000. He went into this work for the purpose of testing the value of the radium treatment. Reports in medical literature and the opinions of those using small specimens of weak radium leave one's judgment of its true value in a rather chaotic condition. The newspaper statements are not such as the medical man wishes to base his opinion on. This section should know something exact. Therefore, Dr. Abbe has put the matter in as graphic form as he could. There is a subtle and unique power in radium, he said, it acts somewhat like the Roentgen ray, but supplants it. It possesses additional power and in many cases in which the Roentgen ray failed to produce any results, radium succeeded in producing a cure. The correct use of radium in all cases of superficial cancer is curative, he said, some patients remaining cured for three years. Often they come back with a slight recurrence, but a little repetition of the treatment immediately cures them again. Radium alone will cure most cases of early epithelial cancer and therefore he believes that it is worth while to give it a trial, especially when surgical methods have failed to produce permanent results. The Roentgen ray will cure many cases, but not all. Radium will not cure all cases, Dr. Abbe said, but often the cases the Roentgen ray will not touch, radium will cure.

UNCINARIASIS IN MISSISSIPPI.

C. C. BASS, M.D.

Chief of Clinic to Professor of Medicine, Med. Dept. Tulane University; Visiting Physician New Orleans Charity Hospital; and Consulting Pathologist New Orleans Dispensary for Women and Children.

NEW ORLEANS.

That uncinariasis exists throughout many sections of the southern states has been known and frequently stated in the last few years. Cases have been reported here and there, but apparently the only case reported from Mississippi is one by Weiss of New Orleans in 1904. The patient was a student nurse from Wilkinson County. E. H. Martin reported finding a hookworm in the ear of a negro girl in Clarke County in 1905. C. W. Stiles, zoologist, United States Public Health and Marine-Hospital Service, read a most instructive paper on the subject before the state medical association in 1904, and presented some cases picked up from the Baptist Orphanage in Jackson.

This study was undertaken with a hope of still further calling attention to the disease.

In March, 1906, I mailed the following letter to 821 physicians in Mississippi, whose names appear on the rolls of membership of the state medical association for 1904 or 1905 and to 172 other physicians whose names were selected from Polk's Medical Directory and who live in counties not represented on these rolls, making a total of 993:

Dear Doctor:—I am trying to ascertain the localities in the state of Mississippi infected with uncinariasis or hookworm disease and the probable prevalence of the disease in the state, and want to ask your co-operation. The result of this investigation will be made the basis of a paper to be read at the next meeting of the state medical association and due credit given those who contribute the information.

As you know, the disease in this country, is due to an intestinal parasite, the *Uncinaria americana* and the chief symptoms are anemia, pale, sallow complexion, dwarfed development, mental or physical, perverted appetite, chiefly dirt eating. The familiar dirt eater of the country is the type from which there are all grades of variation. All the above symptoms are not necessary and vary in degree, according to the number of worms present. Most people who have had "ground itch" within the past few years have the parasites in some number.

They lay enormous numbers of eggs which are easily found in the feces under the microscope. Disease is in the children who go barefoot chiefly but adults have it also.

I would ask if you will not send me in this month as many specimens of feces as you will from patients in whom you suspect the disease and if none, of some anemic or even well people whom you do not suspect. In return I will promptly report to you result of examination of each. Specimens of feces for microscopic examination are best sent in small one, two or three dram homeopathic vials in a mailing case, packed in wood box or placed in holes large and deep enough, bored in a small piece of wood. Not exceeding two or three grains should be sent, larger quantities are unnecessary.

I will ask you to answer the following questions as nearly as you can and return by April 1, whether you send specimens or not:

(1) How many cases of uncinariasis or hookworm disease have you treated in your county which were confirmed by finding the worm or the eggs?

(2) Do you believe that the disease exists in your county?

(3) What percentage of the population do you think have it?

(4) What percentage of the population have the average appearance and condition of those from whom you send specimens?

(5) What percentage of the population are anemic?

(6) Do you see "ground itch" in your section?

Name———————

P. O.———————— County————————

Thanking you in advance for aiding me in studying a disease of paramount importance to the state of Mississippi,

I am, yours very truly,

C. C. BASS, M.D.

Of these 993 letters, 14 were returned unopened for various reasons, such as wrong address, moved, etc., leaving 979 that might reasonably be thought to have reached the addressee.

There were received 88 replies and 71 specimens of feces, 61 of which contained *ovæ uncinariæ*.

Here I want to thank the following physicians for replies, specimens, and other assistance: Abston, J. T., Allen, L. S., Allen, W. G., Arnold, E. F., Banks, E. J., Barksdale, J. W., Barton, W. P., Batson, W. L., Berry, J. T. B., Bethea, J. J., Brown, P. R., Bullitt, J. B., Castle, S. A., Coleman, S. K., Copper, J. A., Crawford, B. L., Crawly, Z. E., Crisler, Julius; Dooley, F. M., Eckford, J. W., Folkes, H. M., Fulgham, F. L., Garrison, H. F., Gibert, J., Guthrie, of Quitman; Hall, R. W., Harbour, G. L., Harman, S. B., Higden, R. E., Hill, J. P., Horton, W. H., Howard, R. E., Howard, W. L., Hunnicutt, J. W., Jagoe, A. J., Johns, W. A., Killis, J. D., Lamkin, L. H., Lewis, H. L., Lewis, T. B., Little, W. L., Lackwood, T. P., McKinnon, H. L., McLean, J. T., McNair, N. J., Martin, E. H., Warwell, W. B., Minor, H. A., Mitchell, T. J., Mohler, D. G., Murray, C. M., Nagle, A. K., Patterson, W. P., Payne, A. G., Perry, J. A., Philips, G. C., Poole, E. B., Price, C. M., Purser, Thos., Quin, R. A., Ramsay, H. H., Reed, A. E., Richardson, H. X., Rope, J. W., Rouse, S. C., Rowland, P. W., Sheetly, C. A., Shivers, M. A., Simmons, J. T., Simmons, V., Spencer, W. C., Stevens, J. J., Street, W. T., Stuart, H. A., Sutherland, H. L., Taylor, Arn., Tennison, D. A., Thompson, C. C., Waldauer, Jos., Weeks, J. D., Weissinger, W. S., Wendel, R. P., West, H. H., Wilkinson, E. T., Williams, J. R., Wilson, T. F., Young, J. W.

The number of physicians replying from each of the forty-five counties heard from is shown in Column 3 of Chart 1. This leaves 31 counties from which no report was received. The largest number of specimens sent by one man (44) was by Dr. L. C. Rouse, Harrison County, 41 of which showed *ovæ uncinariæ*. The largest number of cases reported by one man was 25, by Dr. C. C. Thompson, Marion County. The next largest (15) was by Dr. J. W. Hunnicutt, Pearl River County.

It is very likely that those who had had their attention attracted to the disease were so impressed with its importance that they would have been glad of an opportunity to promote the study of it. Hence we could suppose that the number (104) reported comprises most of the cases positively diagnosed by the physicians of the state. In addition, there were reported 39 cases, the diagnosis of which was not confirmed by identification of the parasite or ovæ, but diagnosed and treated empirically, or in which for some other reason the diagnosis was questionable. Probably many of these were cases of uncinariasis. They are shown in Column 2 of Chart 1 opposite the county from which they were reported. To the 104 positive cases reported by physicians in the state are added and shown in the first column of the chart, opposite the county from which they came, the 61 specimens found positive; 11 cases from Mississippi shown in the records of the New Orleans Charity Hospital; 2 cases from Wilkinson County reported to me by Dr. E. L. McGehee of New Orleans; one case reported from Wilkinson County by Dr. J. D. Weiss in the New Orleans *Med. and Surg. Journal*, and 27 cases from Mississippi in my own private practice since June, 1903. This makes 206 positive cases.[1]

CHART 1.

County:	All positive cases.	Questionable cases.	Physicians heard from.	Number of physicians suspecting his disease.		Number of physicians reporting ground itch.	
				Yes:	No:	Yes:	No:
1. Adams	..	6	2	..	2	1	..
2. Amite	1	Yes.	1	1	..	1	..
3. Alcorn	..	..	2	2	..	1	..
4. Benton	..	..	1	..	1	..	1
5. Bolivar	..	..	4	..	3	1	3
6. Carroll	5	..	1	1	..	..	..
7. Chickasaw	..	..	1	..	1	..	1
8. Choctaw	..	..	2	..	2	2	..
9. Clarke	13	3	2	1	..	1	1
10. Clay	1	..	2	1	1	2	..
11. Conhoma	..	..	3	1	2	..	3
12. Copiah	2	..	3	1	2	2	1
13. Covington	..	1	4	3	1	4	..
14. De Sota	..	..	4	..	4	..	4
15. Greene	..	..	1	1	..	1	..
16. Grenada	..	..	1	..	1	..	1
17. Hancock	2	..	1	1	..	1	1
18. Harrison	48	15	6	5	..	3	3
19. Hinds	3	2	4	4	..	3	1
20. Holmes	..	..	2	2	..	1	1
21. Jackson	3	..	1	1	..	..	1
22. Jasper	12	3	2	1	1	2	..
23. Lafayette	..	..	3	..	2	1	2
24. Lamar	2	..	..	..	..	..	..
25. Lauderdale	..	..	2	1	1	1	1
26. Lawrence	3	..	1	1	..	1	..
27. Lee	..	..	1	..	1	..	1
28. Lincoln	6	3	2	1	..	1	..
29. Madison	..	..	1	..	..	..	..
30. Marion	48	..	2	2	..	2	..
31. Monroe	4	..	1	1	..	1	..
32. Newton	4	..	1	1	..	1	..
33. Noxubee	4	Many	3	2	1	2	1
34. Oktibbeha	..	..	1	..	1	..	1
35. Pearl River	16	..	2	1	..	..	..
36. Perry	2	Many	1	1	..	1	..
37. Pike	22	6	5	2	..	4	..
38. Rankin	..	..	1	..	..	1	..
39. Sunflower	..	..	2	..	1	..	1
40. Tippah	..	..	1	1	..	..	1
41. Warren	..	..	2	..	2	1	..
42. Washington	..	..	5	..	5	..	5
43. Wayne	2	..	..	..	..	..	..
44. Wilkinson	..	..	..	..	..	..	..
45. Webster	..	..	1	..	1	1	..
Total	206	39	88				

The number of physicians answering "Yes" or "No" to Question 2, "Do you believe that the disease exists in your county?" is shown in Columns 4 and 5 of Chart 1. Just what these opinions should count for will depend largely on the idea those giving them have of the symptoms of the disease. As for their correctness in a gen-

1. To show their geographical distribution I arranged them on a skeleton map of the state, a red dot representing each case in the county from which it came. Unfortunately, it was impossible to reproduce this map in THE JOURNAL.

eral way, it is interesting to note that "No" was the answer from 3 of 4 reports from Bolivar (the other physician not answering), all 4 from DeSoto and all 5 from Washington. These are all in the section of the state least likely to be infected on account of soil, and least likely to show infection if it does exist because of the large negro population who, though infected, are immune to a considerable extent to the effects of the infection. On the other hand, note the answers from the counties from which the most cases are reported; Harrison, all 5 "Yes;" Marion, both "Yes;" Pearl River, the only answer was "Yes;" Pike, the only 2 "Yes."

The answers to Questions 3, 4 and 5 were too few and irregular to be tabulated. The answers to Question 6, "Do you see 'ground itch' in your section?" are shown in Columns 6 and 7 of Chart 1. In the light of recent study of the mode of infection and life cycle of the parasite every case of "ground itch" speaks positively for one and generally two cases of uncinariasis.

It may be interesting to speak of some of the experiments. Claude A. Smith applied a mixture of feces and earth containing the encysted larvæ to the arm of a man. In a few minutes stinging and burning was felt at the site. A dermatitis promptly developed which ran a course of swelling, papules, vesicles (which became confluent), scabbing, and healing, lasting about 12 days. The lesions and course were similar to those of the common "ground itch" except that they were more severe. This probably was due to the intensity of the infection. The man's feces were examined weekly and in about 8 weeks *ovæ uncinriæ* were found. He also demonstrated that mud containing the encysted larvæ when applied to the skin was, in a few minutes, free from them, but that they were to be found on the skin which soon developed dermatitis.

Looss, in 1898, had become infected, as he thinks, through accidentally soiling his hands in his laboratory with cultures of the parasite from which he developed dermatitis and later found ovæ in his feces. An unanswerable possibility of his infection, though, was that he might have been accidentally infected per os, instead of by the skin. In 1902 he infected a male nurse by letting seven drops of very heavily infected water fall on his arm. In 71 days ovæ were found in this man's stools. Very recently, however, Looss has worked out not only the place of infection, the skin, but demonstrated conclusively the route the larvæ take to reach the intestinal canal. They enter the skin and penetrate the veins and probably the lymphatic vessels. In the veins they are swept directly into the right heart. In the lymphatic system they would have to work their way through the glands, but finally by the thoracic duct they would be emptied into the vena cava and right heart. From the right heart they are swept into the lungs, and for the same reason that *Amebæ coli* are stopped in the liver and often cause liver abscesses they are stopped in the lungs. They are too large to pass through the capillaries. They now penetrate the lung tissue and bronchial tubes, whence they are coughed up; some are spit out. Many more are swallowed, pass through the acid gastric juice to the small intestines, their normal habitat, where they develop to maturity.

It is interesting to note that Lambinet found that the encysted larva is not killed by 25 per cent. sulphuric acid solution in three-quarters of an hour, or by 2 per cent. bichlorid solution in six hours.

Ninety-six per cent. of 18,865 patients seen by Ashford and King in Porto Rico who were questioned on this point gave a history of "ground itch," and many dated their decline in health back to severe attacks. Ashford and King believe that this is the source of 99 per cent. of the infection, and say that "all other routes are rarities, at least in Porto Rico, and do not merit the space necessary to discuss them."

The parasite does not reach maturity outside of the human host; hence the patients with "ground itch" must have gotten their infection indirectly from some one else already infected. From this we would conclude that the counties in which ground itch is reported are also infected. This would add the following 12 counties: Adams, Alcorn, Bolivar, Choctaw, Covington, Greene, Holmes, Lafayette, Lauderdale, Rankin, Warren and Webster.

Having shown that uncinariasis exists in a large part of the state at least, we would like to know to what extent. The answers to the question were few and too irregular to be tabulated. They would depend for their value on the physician's knowledge of the disease. Let us see what those having the largest experience with it think. Dr. L. C. Rouse furnishes 41 of the 48 cases from Harrison County and says that he thinks 6 per cent. of the population have the disease. Dr. Hunnicutt reports 15 of Pearl River County's 16 and thinks 25 per cent. of the population has it. Dr. Thompson reports 25 of Marion County's 48 and thinks 20 or 25 per cent. of the population infected. Twenty-two from Marion County were my patients, and, based on my recollection of conditions there and the subsequent routine examination of a large number of people for uncinariasis, I would say that Dr. Thompson's figure is even too small. I should expect a careful examination to show that 50 per cent. of the rural population of Marion County are infected to some extent and that several of the other counties in the southern part of the state are equally as badly infected. I speak of the southern part of the state because I am not acquainted with the conditions in the northern part, not because of the difference in soil. I believe the observation of Stiles that sandy soils are practically the ones infected, only holds good in a very broad sense. Most likely the prairie lands of Mississippi are less infected because privies are used more generally than in timbered lands.

Ashford and King studied over 23,000 cases in Porto Rico with reference to this point and concluded that the sandy soil was least infected. That the hatching of the eggs requires mixing with sandy soil, I am prepared to dispute, for I have repeatedly had them hatch in my laboratory in undiluted feces when allowed to become partially dry. I have not seen them develop into the encysted or infective stage, however.

It was not intended that this paper should deal further with the subject, but the many inquiries as to symptoms, diagnosis and treatment prompt me to say a few words on these points.

The most important and constant symptom may be given, I believe, as a secondary anemia of almost any degree and symptoms due thereto.

The worm is small, thread-like and about one-half inch in length. Its habitat is the duodenum, jejunum and ileum, chiefly the jejunum. It has long been considered a blood sucker. It buries its head in the mucous membrane and like many other blood-sucking parasites puts into the tissue a substance excreted by the buccal glands, which reduces the coagulability of the blood, causes local hyperemia, and in sufficient quantity is a

systemic toxin. They change feeding ground often and leave a bleeding wound, which continues to bleed for some time. The red blood cells of the blood they swallow pass through them undigested, only the plasma being used. In both these ways they waste considerable blood. A patient may have anywhere from one worm to 4,000 or 5,000. If one drop of blood was wasted daily by each of 2,000 it would amount to nearly 3 ounces a day. It would be easy to see how marked anemia would be caused and how one patient might have slight and another marked anemia, depending on the number of parasites and also on his blood-making ability. Note the amount of anemia that would be produced by say 500 worms in a robust man taking outdoor exercise, sunlight and nutritious diet. He probably would make blood fast enough to feed the parasites and keep his demands well supplied. Take, on the other hand, a factory girl or boy, a man at some confining indoor work, a pregnant woman, or a case of any illness in which the blood-making power is reduced, and a marked anemia would develop from the same number of parasites that caused none in the other case.

Now add the effect of the toxin, which, if nothing more, destroys the coagulation of the blood as shown by Loeb and Smith. If it plays much part in the disease, which it probably does, the question of resistance or immunity to this toxin would also influence the degree of the symptoms. There is reduction in the number of red cells, with a still greater reduction in the percentage of hemoglobin. This explains the dirt eating of affected children, who are unconsciously trying to supply Nature's demand for iron with which to make more hemoglobin. Another fairly constant blood change is the marked increase of the eosinophilic leucocytes. The normal number may be given as from 2 per cent. to 4 per cent. Here they are generally increased to 10, 15, 20 or 25 per cent., and sometimes higher. Charts, 2, 3, 4, 5, 6 and 7 are copied from a few of Ashford and King's detailed blood reports of cases to show the average blood finding of severe cases and result on it of treatment. Chart 5 was a case of pulmonary phthisis complicated by uncinariasis. Think what the anemia due to uncinariasis may have had to do with the development or progress of the tuberculosis. Chart 8 is from a case from St. Tammany Parish, La., which shows about as marked anemia as the Porto Rico cases. Chart 9 is from Ashford and King's 540 cases at Bayamon, P. R., and compares race with hemoglobin percentage, and shows that the negro suffers less anemia than the white man or mulatto. After a study of over 23,000 cases, they conclude "the negro is just as heavily infected, just as dangerous to the community as the white man, but he possesses a relative immunity to the effects of the parasite." This may explain why it is thought the infection does not exist in the delta section of this state.

Chart 2.

Date.	Hemoglobin.	Red cells.	White cells	Eosinophiles
May 8	33	2,868,000	13,200	16.8
May 16	36	2,991,040	5,000	22.4
May 23	38	3,960,000	5,200	16.4
May 30	36	4,384,000	3,200	17.6
June 6	50	4,000,000	9,200	8.6
June 13	56	4,541,600	5,200	14.8
June 20	62	4,360,000	9,800	10.8
June 27	67	5,261,600	7,200	8.8
July 4	66	4,152,800	8,800	9.6
July 11	76	6,866,400	6,400	6.0
July 18	83	7,035,200	6,200	....
July 25	83	7,035,200	7,400	4.8
Aug. 1	82	5,176,000	4,600	5.6
Aug. 8	75	5,924,000	5,000	8.6
Aug. 15	101	5,164,000	7,800	8.8

Chart 3.

Date.	Hemoglobin.	Red cells.	White cells	Eosinophiles
May 17	28	3,480,000	7,400	10.
May 24	29	3,024,000	7,200	8.
May 31	30	3,864,000	5,000	8.8
June 7	50	3,981,600	11,600	4.
June 14	54	5,786,400	4,200	8.8
June 21	66	5,355,200	5,800	10.4
June 28	90	6,195,200	6,400	12.
July 4	103	6,088,000	17,800	6.4
July 21	115	.....	.....	....
Aug. 2	95	.....	.....	7.2
Aug. 3	92	.....	.....	8.8
Aug. 4	92	.....	.....	6.4
Aug. 6	85	.....	.....	6.

Chart 4.

Date.	Hemoglobin.	Red cells.	White cells	Eosinophiles
May 12	20	3,195,520	6,400	.8
May 19	28	2,804,000	5,000	4.8
June 26	38	4,075,620	3,400	6.8
June 2	38	4,626,400	3,800	4.8
June 9	41	5,901,600	4,400	4.
June 16	46	5,817,600	4,400	7.2
June 23	49	6,016,000	5,000	8.
July 30	55	5,964,000	6,400	21.2
July 7	67	6,466,400	7,600	12.2
July 14	76	6,295,200	11,200	9.2
July 21	82	6,017,600	6,600	9.6
Aug. 28	83	6,364,000	4,400	8.
Aug. 4	90	6,630,400	8,800	2.2
Aug. 4	104	6,724,000	7,800	1.6

Chart 5.

Date.	Hemoglobin.	Red cells.	White cells	Eosinophiles
May 13	27	2,366,640	6,200	2.
May 20	19	1,688,000	5,000	.4
May 27	25	1,804,000	3,800	4.1
June 7	27	2,964,000	4,800	..
July 13	30	2,977,600	8,600	.8

Chart 6.

Date.	Hemoglobin.	Red cells.	White cells	Eosinophiles
May 13	14	1,226,400	4,200	8.4
May 20	21	1,746,640	5,000	4.4
May 27	21	2,084,400	5,600	2.8
June 3	22	2,504,000	4,000	3.2
June 10	22	2,377,600	3,600	2.4
June 17	32	2,555,200	2,800	3.2
June 24	52	4,461,600	4,200	3.2
July 1	41	3,528,800	4,200	2.8
July 8	65	4,870,400	8,200	1.2
July 15	78	4,852,800	4,200	5.6
July 22	78	4,352,000	5,600	3.2
July 29	68	4,417,600	6,200	3.2
Aug. 7	95	5,092,800	8,200	4.8
Aug. 14	109	5,190,400	10,800	2.

Chart 7.

Date.	Hemoglobin.	Red cells.	White cells	Eosinophiles
May 14	16	1,531,200	7,800	18.3
May 21	31	2,133,280	6,200	14.4
May 28	27	2,666,400	11,600	18.4
June 4	35	3,880,000	9,800	28.4
June 11	36	3,315,200	7,400	22.
June 18	50	4,181,600	14,800	17.2
June 25	59	5,238,400	11,200	46.
July 2	56	5,288,800	7,400	22.
July 9	55	5,195,200	11,200	32.4
July 17	64	5,461,600	9,600	40.
July 23	64	5,786,400	4,800	18.
July 30	84	5,440,000	9,600	24.4
Aug. 6	90	6,688,000	6,800	26.
Aug. 14	101	5,928,800	10,200	28.4

Chart 8.

Date.	Hemoglobin.	Red cells.	White cells	Eosinophiles
November 14	25	2,457,500	5,035	16.
November 22	35	2,987,500	3,050	12.
November 28	50	3,603,125	2,431	21.
December 8	65	4,050,000	2,083	20.
December 15	65	5,005,600	3,024	18.

Chart 9.

Race compared with hemoglobin.	White.	Mulatto.	Black.
Below 20 per cent.	20	8	1
Between 20 and 30 per cent.	83	23	1
Between 30 and 40 per cent.	88	31	4
Between 40 and 50 per cent.	82	26	9
Between 50 and 60 per cent.	43	26	2
Between 60 and 70 per cent.	39	16	2
Between 70 and 80 per cent.	10	11	2
Between 80 and 90 per cent.	6	5	1
Between 90 and 100 per cent.	..	..	..
Between 100 and 110 per cent.	..	..	1
Total	371	146	23

The diagnosis is made by finding the worm or eggs in the feces. The latter requires the use of a microscope. A small dose of thymol, followed by a purgative will usually bring away a few parasites by which the diagnosis can be made in the absence of a microscope. I take this opportunity of making a preliminary announcement of what I believe to be a new, and I know, an improved technic for examining feces for the eggs. When there are many eggs it is easy to find them by placing a small quantity of feces on a slide, diluting with a drop of water and examining under a low power microscope. This is sufficient for most cases with enough parasites to cause symptoms. Sometimes when this technic does not show eggs the question comes up whether there may not be a few, but like the "needle in the haystack," they can not be found. It is well known that patients with few parasites may have profound symptoms. Also to know that a patient is positively cured is hard with the above technic.

It is for this class of cases that I recommend this improved technic. It depends on the fact that the eggs will float in a solution in which the balance of the feces will precipitate. I am not prepared to give out exact figures as to the specific gravity or say what is the best solution, but for practical work nine-tenths of a saturated solution of sodium chlorid answers. Put a small quantity of feces in a 3- or 4-inch homeopathic vial, three-fourths filled with the salt solution, stopper and shake well. Set aside to settle. Then either with a medicine dropper take up several drops from the edge of the surface and examine under the microscope, or, with a small piece of wood like a toothpick, the end of which is wrapped with a little pledget of absorbent cotton, take up a drop from the edge of the surface and place on a slide. All the eggs rise to the surface and large numbers are found in one drop. They take up some of the solution by endosmosis and in about an hour begin to precipitate. I am sure some other salt would be better on this account than sodium chlorid, but have not been able to work it out quite satisfactorily yet. I expect to consider at length this technic in a future article on this subject.

The treatment is so simple, satisfactory and definite that I will simply state it without comment.

Empty the alimentary canal with any purgative, give 60 grains powdered thymol divided into two or three doses, two hours apart. In two or three hours give a saline cathartic. Allow no food, alcohol or oil during course of the treatment. Repeat once a week; continue until no ova are found. This requires from one to a dozen courses. Sixty grains of thymol is an adult dose; it may cause a little dizziness, but if not brought into solution by oils or alcohol it is not toxic. To discuss any other treatment would be like discussing something other than quinin for tertian malaria.

In conclusion, I believe that the state is widely infected with a disease slower, yet more deadly, either directly or indirectly, than yellow fever, tuberculosis, malaria or smallpox. That it is dwarfing and destroying, both mentally and physically, a very large percentage of her youth and sapping the very life blood of many of her men and women. My cases include every walk and stage of life, rich and poor, laborers, a lawyer, a doctor, a state senator, a baby, young girls, and a woman of 50. It is not necessary to say that a person's physical and mental capacity are reduced in the same proportion as the quality of the blood. Also the resistance to the effects of other diseases. A person constantly robbed of 20 per cent. of his blood would have a capacity of only 80 per cent. of his normal 100 per cent.; a loss of 50 per cent. would reduce his capacity one-half.

The daily financial loss to the state must be enormous. Thousands are disabled entirely, many more partially so, all due to a disease so insidious and slow that it causes little notice. In fact, patients affected generally do not consult a physician for their trouble. They are just passed as "pale, puny" children, "dirt-eaters," etc., without any definite cause being given or relief offered.

What is the remedy? I believe that it consists in disseminating knowledge of the disease to the profession of the state and through them to the laity. The Porto Rican government has spent $20,000 for this purpose. On this the "Porto Rico Anemia Commission" has treated 23,000 patients, most of whom were cured. In addition, they have assisted dozens of physicians to familiarity with the disease. Where else could government money have been so well spent? Why should not the State of Mississippi take the lead of the southern states, and just as Porto Rico has done, appoint a committee to investigate and to treat this disease in different parts of the state in co-operation with the profession? Let the physicians of the section come to a station, bring their cases, study the symptoms, diagnosis and treatment of the disease and take up the work of eradication. While the legislature is in session would be a good time for this association of representative physicians of the state to recommend and to ask for such a commission to ascertain the prevalence of this disease and to aid in treatment and dissemination of knowledge concerning it.

I have quoted freely from the literature without citing locations. Complete references will be found in the reports of the Porto Rico Anemia Commission.

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A METHOD OF TREATMENT OF HEMORRHAGE.

PRELIMINARY NOTE.*

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The principal resources at present for the treatment of hemorrhage may be included in the following:

(a) The administration of various fluids, such as normal saline, Ringer's or Locke's solution; (b) posture; (c) bandaging or other means of compressing the extremities and the abdomen; (d) stimulants.

The effect of stimulants diminishes with the increasing gravity of the hemorrhage, and in every progressive case a stage is finally reached in which the anemic centers no longer respond. The heart muscle, however, retains much of its susceptibility to such drugs as digitalis, and may be functionally seriously damaged by the injudicious administration of this drug. Posture and bandaging may be considered together, as their aim is that of throwing as much of the diminished quantity of blood to the heart and the brain as is possible to help tide over the crisis. It is at once obvious that such measures are strictly limited in their therapeutic value, as in any progressive hemorrhage these mechanical means can not supply new blood. They are most

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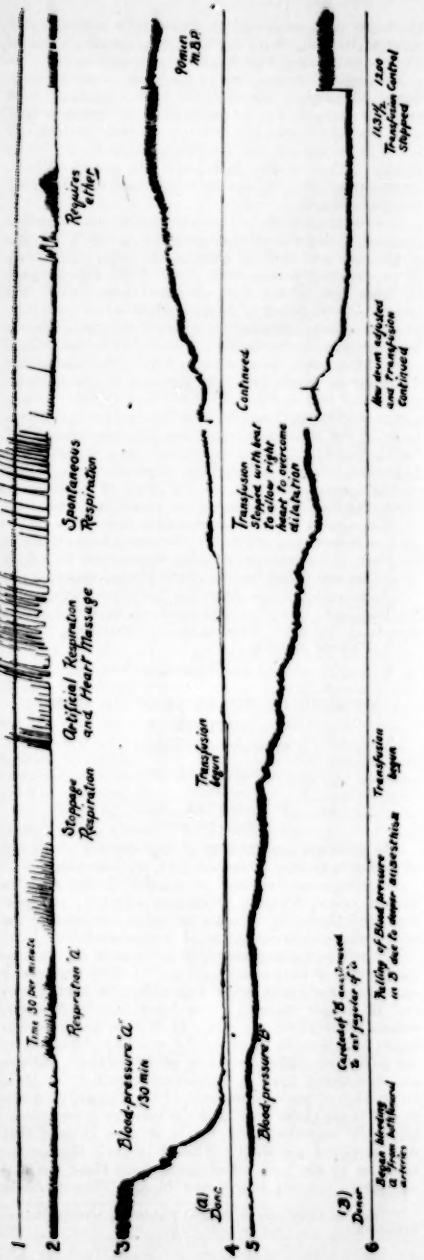

valuable within their range, but wholly valueless when the amount of blood lost reaches the maximum consistent with life.

The administration of the various kinds of artificial sera, such as normal saline, Locke's or Ringer's solution, has the same and an additional shortcoming; viz., these solutions will not, beyond a certain amount, remain in the blood vessels. In excessive dosage these solutions accumulate in the gastrointestinal tract, the lungs, spleen, liver and many other parts of the body, constituting in itself a menace to life. The use of these solutions is exceedingly valuable, but there is an obvious limit to their usefulness.

Our research has been directed toward finding a means of successfully treating the class of grave cases in which our present methods can not relieve and death must inevitably follow. An effective method in this class of cases must supply more isotonic blood. The biochemic researches of recent years have established the principle that the blood of an individual of one species can not with safety be introduced into an individual of another species. One man must then be treated by another man's blood. On account of the risk of clotting and deterioration the methods of blood transfusion hitherto used are not applicable.

The recent technic of Carral has been utilized by us in a large series of experiments, which will later be published in detail, in the following manner:

The proximal end of an artery of one animal, the donor, is united by an end-to-end anastomosis with either an artery or vein of the bled animal, or donee.

The lumen of each vessel during the suture is closed by means of the author's special clamp used in closing the carotid and other arteries. After the anastomosis is complete and the line of union proven impervious, the arterial blood of the donor is allowed to flow into the vessel of the donee until a sufficient amount of blood has been transferred. If the proximal end of the artery of the donor be anastomosed with the proximal end of a corresponding artery of the donee there is virtually no risk of excessive blood transference, as the two pressures will tend to balance at some point lower than the normal.

In our researches every degree of hemorrhage was treated. Most of the cases were first treated by other methods. After these had wholly failed, transfusion was done. Later in the research the animals were at once bled to a presumably fatal degree. Without exception they recovered. Even when the animal was bled until the respiration ceased and no pulse wave reached the carotid artery, and after apparent death, i. e., when the animal appeared to be dead but the heart on inspection still showed a rhythmic contraction of the auricle, though there was not the slightest circulation, in every such instance the animal was resuscitated. However, after every rhythmic contraction wave had disappeared—usually from 8 to 15 minutes after cessation of the circulation and respiration—the animals were not resuscitated.

What is the result of the transfusion of so large a volume of blood from one animal to another? In a number of recovery experiments in which every possible drop of blood was removed, then replaced by transfusion from another animal there was no evidence that the blood became disintegrated or that it caused any pathologic changes. The animals showed no ill results; indeed, they seemed as well with their fellow's blood as with their own.

After the technic is learned the anastomosis may be completed in a few minutes. Under local anesthesia we performed such an anastomosis between the radial artery of a man with the proximal end of the basilic vein of his wife and readily transferred some of his blood to her circulation. This method would be applicable to any case of hemorrhage not amenable to ordinary methods. We are unable to resist the conclusion that the factor of hemorrhage may, under favorable circumstances, be eliminated.

The tracing shows a case of resuscitation after apparent death from hemorrhage. Dog A., weight 6.8 kg.; dog B., weight 8.1 kg. 1. Time, 30 per minute. 2. Respiration of bled animal. 3. Blood pressure curve (carotid artery) bled animal. 4. Base line bled animal. 5. Arterial pressure donor (animal supplying blood). 6. Base line of donor. On the upper half of the cut is represented the blood pressure and the respiration of the animal bled; on the lower half is represented the blood pressure of the animal from which blood was transferred (donor). Reading from right to left, note in the upper tracing the abrupt fall in the arterial pressure during hemorrhage of 300 c.c. arterial blood. The animal was bled until there was neither pulse nor respiration wave recorded and there was no sign of life. Two minutes later transfusion from the carotid artery to the jugular vein was begun. Note the fall in the blood pressure of the donor and the rise in the donee (bled animal). The ventricular beat had stopped and was inaugurated by rhythmic pressure on the chest. On account of the freshly oxygenated blood transfused, artificial respirations were unnecessary. Both animals promptly recovered. Recovery would have been even more prompt had the transfusion been given into an artery toward the heart. Also, when a longer time has elapsed after apparent death adrenalin injected into the artery is required. The least favorable conditions were purposely chosen for this experiment.

WHAT IS THE EFFECT ON PROGENY OF THE LOSS OF TEETH IN ANCESTRY?*

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In almost every country family there is a sub-family of dogs and my father's household was no exception to this rule. When I was a boy, there was born into our sub-family a pup with a short stump of tail, identical in proportion to his father's, whose tail had been cut off to suit the prevailing style.

This fact attracted my attention very strongly, and in looking over my research work I can see it has had great influence on my opinion as to variation in species and the law of heredity; to the end that I believe acquired defects in teeth as well as in tails can be inherited from ancestry.

DARWIN AND HEREDITY.

De Vries, Haeckel and others, in recent work, have made advances in working out details of Darwin's theories of inheritance, variation and natural selection, but none have cited evidence to disprove his main position; on the contrary, most research tends to establish and to strengthen him, hence I shall quote freely from his "Origin of Species."

In the chapter on "Variation and Inheritance," on page 11, he says:

Any variation which is not inherited is unimportant for us. But the number and diversity of inheritable deviation of structure, both those of slight and those of considerable physiologic importance, are endless. Dr. Prosper Lucas' treatise, in two large volumes, is the fullest and the best on this subject. No breeder doubts how strong is the tendency to inheritance; that like produces like is his fundamental belief; doubts have been thrown on this principle only by theoretical writers. . . . Everyone must have heard of cases of albinism, prickly heat, hairy bodies, etc., appearing in several members of the same family. If strange and rare deviations of structure are really inherited, less strange and commoner deviations may be freely admitted to be inheritable. Perhaps the correct way of viewing the whole subject would be to look at the inheritance of every character whatever as the rule and non-heritance as the anomaly.

The laws governing inheritance are for the most part unknown. No one can say why the same peculiarity in different individuals of the same species, or in different species, is sometimes inherited and sometimes not so; why the child often reverts in certain characteristics to its grandfather or grandmother or more remote ancestor.

Variation under domestication is more rapid than variation under Nature, for in the former we have conscious selection of variations, and in the latter unconscious or selection by chance. The study of these laws led Darwin to advocate his belief in natural selection or the law of survival of the fittest. On page 121, he says:

In one sense the conditions of life may be said not only to cause variability, either directly or indirectly, but likewise to include natural selection, for the conditions determine whether this or that variety shall survive. But when man is the selecting agent, we clearly see that the two elements of change are distinct; variability is in some manner excited, but it is the will of man which accumulates the variations in certain direction; and it is this latter agency which answers to the survival of the fittest under nature. From the facts alluded to in the first chapter I think there can be no doubt that use in our domestic animals has strengthened and enlarged certain parts, and disuse diminished them; and that such modifications are inherited. Under free nature we have no standard of comparison by which to judge of the effects of long continued use or disuse, for we know not the parent forms; but many animals possess structure which can be best explained by the effects of disuse.

It would seem that the intelligence of man lays him the more liable to degenerative effects, except in intellectual progress, for our protected lives favor fluctuating variability and accumulate the variation. Man's intelligence is strenuously exercised to improve his beast, but under our present social system his own qualities can not be bred for improvement. Undoubtedly we grow physically weaker as we grow intellectually stronger. Fisk says that in man, "the ape and the tiger will become extinct and a process of psychologic change take its place. Henceforth, the dominant aspect of evolution in man is to be, not the genesis of species, but the progress of civilization." There can be no doubt, however, but that the evolution of both mind and body in man, will keep him and leave him in his proper and natural place, for such are these laws of our Creator.

DETERIORATION OF TEETH.

If modifications appear constantly under the tedious and accidental selection of Nature, conscious selection under the wholesale extraction and disuse of teeth in man must accumulate this variation and result in the deterioration of these organs. This extraction of teeth, however, can not properly be called conscious selection, for there is no premeditation in this sense, neither is there any fight for life in these organs, in the sense

* Read in the Section on Stomatology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

this term was used by Darwin. On account of artificial environment and misuse of the teeth, incident to civilization (if one might be allowed the liberty), this process in man could be called by the paradoxical term, artificial natural selection. Deterioration of teeth in man might be supposed to have begun when he ceased to use them as organs of defense, or when he began to build fires and cook his food, a thing wholly unknown to Nature, except with man. With fires and cooking, no doubt, many degenerative features began in his physique.

There is much discussion as to whether acquired variations or mutilations are inherited. Darwin says: "The evidence that accidental mutilations can be inherited is at present not decisive. But the remarkable cases observed by Brown-Séquard in guinea-pigs, of the inherited effects of operations, should make us cautious in denying this tendency." In another place under the head of abortive organs, he says: "We have plenty of cases of rudimentary organs in our domestic productions, as the stump of a tail in tailless breeds, the vestige of an ear in earless breeds of sheep, the reappearance of minute, dangling horns in hornless breeds of cattle," etc. The teeth of man certainly can be no exception to this tendency.

VARIATIONS AND HEREDITY.

Variations are divided into two classes. First, those that are congenital or inborn, such as appear at birth and have no discoverable origin aside from life force; second, those that appear after birth, and seem to be due to environment, such as use or disuse, the effects of food, climate, conscious mutilation, conscious selection. Syphilitic and other diseases, peculiar to civilization, often produce defects and variations which are also inheritable.

Conscious Selection.—While we could hardly expect to see an unusual development of the hands of a child because its father or mother is an expert pianist, we do, under conscious selection, see most extraordinary developments in the pouter, fantail, and other varieties of pigeons, the original stock of which was the well known rock pigeon. Again, in color, size and varieties, of horses, dogs and cattle, we have features of the laws of heredity, which are hard for us to understand. These anomalies appear when least expected. For instance, when we have been breeding for certain features and have followed rules that formerly brought definite results, now and then unlooked-for freaks appear.

Defective Tooth Structures.—Most of us can cite instances of families in which there is a defective, malpoised, or absent tooth, often a superior lateral, running through several generations. May not this defect or mutilation have started from the loss of a tooth or from a badly decayed tooth in some ancestor? May not a principle have been fixed, by the almost universally defective sixth year molar running back for centuries or generations?

In view of the foregoing, is it not reasonable to assume that the general lack of resistance to decay of the teeth in most races of men is due to the loss of and disuse of teeth in ancestry, with the consequent defective tooth structure in progeny? A condition which seems to grow worse with each generation. Has this not become a fixed principle? It is found by examination of the skulls of aborigines, as well as of existing tribes of men, that with few exceptions all tribes have been and are subject to bad teeth and defective jaws to nearly the same extent as civilized man. This fact has been confirmed recently by Dr. W. J. Younger's examinations of Egyptians and Egyptian mummies. I believe one would be safe in assuming that a large majority of the human race have lost one or more teeth before the age of thirty, and a very large per cent. have lost eight, ten, or more. The first loss, more frequently, being the sixth year molar. In each case there is a loss of bone as well as of teeth, and what we know of heredity would make one believe that these mutilations can be handed down, if not in total absence of tooth or bone, at least in defective structure.

Talbot lays stress on unstable or defective nervous system as a cause of these heredity defects and goes more largely into degeneracy of the head, face, jaws and teeth, but I believe does not discuss to any degree, the question of defective teeth, or the loss of teeth in ancestry as affecting these special organs in progeny. One can easily admit that an unstable nervous system can effect the whole being. Any animal born perfect, with the exception of one organ, may perish immediately. Defective organs, such as eyes, ears or teeth, necessarily weaken the entire organism so that in the wild state, the creature soon dies or lives for a time in an imperfect condition. The nervous system, as well as other organs being unstable and inefficient, the animal succumbs to disease or to natural enemies long before its allotted time; hence the law of survival of the fittest. This law is not so strenuous with man, especially civilized man, since his intelligence and sympathy result in the protection and preservation of imperfect individuals. And imperfect humanity, under civilized protection, seems to be the class that propagates more freely than others, with the result that we have great numbers of degenerates, in one form or another, who continue to hand down their defects to their progeny, and no one organ seems to suffer this degeneracy more than the teeth, they being greatly prone to decay, accessible to removal and held in light esteem. Talbot supports the truth of inheritance of mutilation, giving statistics to show that circumcision in the Jewish race results in absence of, or defective prepuce in about 3 per cent. of male Jewish children.

NUMBER OF TEETH LOST ANNUALLY.

In endeavoring to get some fixed idea of how many teeth are lost annually, I secured an estimate from a prominent manufacturer, of the number of artificial teeth produced each year in the United States. His estimate was the astonishing figure of thirty-five millions. There may be various reasons *pro* and *con* for this not being a fair figure to calculate from, but it has a basis of truth and is the best plan I know on which to proceed. Thirty-five million teeth lost annually to the people of the United States would leave us, at the average age of 30, with only two teeth apiece, and this evidently is not the case. If, however, we assume the average loss to each one in a lifetime to be 5 and assume the average age to be 30, this would make an average annual loss to each individual of one-sixth of a tooth, or 13,333,333 for the United States. This means 40,400 pounds (330 teeth to the pound) or a large freight car loaded to its full capacity each year with human teeth, lost in the United States alone. Assuming the population of the earth to be one billion, five hundred million, the annual loss to mankind would be 757,576 pounds, or 18 carloads of 40,400 pounds each. These numbers are almost unthinkable, yet I believe they approach the truth.

TEETH HELD IN LIGHT ESTEEM.

Reparative dentistry is almost wholly unknown with the common people of all nations, and even with people

able to pay, comparatively little dentistry is done where it should be, and numbers of teeth are lost to every one that is repaired or replaced. Throughout civilization there is no other organ of the body held in so slight esteem. Blacksmiths, barbers, physicians and even dentists dispose of teeth without thought of their importance. The only requirement in nearly all instances is that the patient himself wants the tooth out. One might say that the loss to future generations is never considered, and few really consider seriously the loss to themselves. If they can only get rid of the offending organ they are satisfied. In their desire to save their teeth they are little better than savages. I also believe that almost as many teeth are lost from disease of the gums as are lost from decay and accident.

The ability of civilized man to compensate for these losses, by the use of cooking and other methods of premasticating and preparing foods, enables him to live almost a normal healthy life with no teeth at all, or with poor substitutes. This compensation by intelligence applies to all disorders and conditions and accounts for the lack of application of survival of the fittest to man in the same degree that it does to other species of organic life, not affected by civilization. Defective or diseased eyes or ears nearly always cause the affected individual to make efforts to save them, or to make them better; the same is true of other organs of the body; but the teeth seem to be of less importance to the majority, otherwise dentists would be many times more numerous and in much greater demand. Who knows the far-reaching effects on the present or future generations from the loss of these organs at the present rate. The effect does not stop with the mouth and teeth, for the condition of each separate organ affects the whole organism either to a limited or to a greater degree, and it must be of the greatest importance to life and health that this vestibule of the body, through which all the nourishment of life must pass, should be kept in as perfect condition as possible.

THE LAW OF INHERITANCE: THEORIES.

The law of inheritance has been deeply studied by many of our most scientific minds for generations, yet up to the present, the practical results of breeding in plants and animals give us most of our knowledge. To go deeper into the subject means to take up the study of cell life, but when one has gone into this branch of biology far enough to discuss intelligently the idioplasm theory of Naegle, along with the beautiful theories of others, we are still left with only the facts as brought out by conscious and systematic breeding. This is indicated by Professor Edmund Wilson:[1] "Yet the splendid achievements of cell-research in the past twenty years stand as the promise of its possibilities for the future, and we set no limit to its advance. . . . We can not foretell its future triumphs, nor can we doubt that the way has already been opened to better understanding of inheritance and development." To go deeper than cell life means to debate whether heredity is heredity, or whether it is variation and modification due to environment; to go farther still, is to discuss the point as to whether all matter is dead, or all alive, and so on into unthinkable propositions.

LUTHER BURBANK AND PRACTICAL RESULTS.

On the side of thinkable and practical results, we have many assiduous workers, but no one seemingly has done so much, with such telling results as Mr. Luther Burbank, whose new creations in plant life seem to have upset some ideas, heretofore accepted as laws. In place of conclusions based on observations of dozens or hundreds of plants, Mr. Burbank decides only after observation on thousands or millions of individuals and many generations of tests. His experiments seem the only ones which at all compare in figures with the enormous losses of human teeth.

By keen and intelligent selection from millions of specimens he accomplishes in ten years what natural selection would probably require ages or æons to do, and does it with a much greater benefit to mankind and to science. Regarding the so-called Mendelian Laws, which refer to heredity in the breeding of plants, his biographer says:[2]

> Over and over again, through a series of many years, dealing with millions of plants, and on a scale which dwarfs all other experimentation, Mr. Burbank has disproved these laws. . . . Leading scientists have maintained, and their followers have added the weight of their evidence that acquired characteristics are never transmitted. In the limitless fields of operation before him, Mr. Burbank has not only disproven this over and over again, but has established the opposite, that acquired characteristics are the only ones that are transmitted. . . .
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> Regarding the laws governing mutation or saltation, Mr. Burbank, times without number, has produced these strange mutations at will. They can be produced, he says, by anybody who systematically sets to work to disturb the life habits of the plants. Thus the peculiar phenomena which scientific observers on a small field have so sedulously studied, and have at last come to consider the result of a supreme act of Nature, are entirely within the province of any market gardener or amateur plant breeder. . . . Putting the matter in condensed form, Mr. Burbank says, "Heredity is the sum of all past environment." Heredity now becomes something far different from what it had before been held to be. "Every plant, animal, and planet," he holds, "occupies its place in the order of Nature by the action of two forces, the inherent constitutional life force, with all its acquired habits, the sum of which is heredity; and the many complicated outside forces or environments."

If then, it be a law of heredity that variations and acquired habits are the ones transmitted and that this "principle is indelibly fixed by repetition," also the mutilations may be inherited, what should we expect in the case of such enormous losses of teeth as are now, and for so many ages have been, going on in the human race?

Under these laws and conditions we would not expect the absence of one or more teeth in thousands, or may be of hundreds of thousands of individuals, but we would expect to find, as indeed we do, teeth of most inferior quality prevading the whole of civilization, with the consequent ravages of disease from their lack of resisting power. A principle of heredity supporting this view is found in the presence of rudimentary incisors in the upper jaw of the calf, which do not erupt, and the rudimentary teeth in the baleen whale, which always appear in the gums, as in the calf, but never erupt and are never of any practical use. There seems to be no question about the law, as previously quoted, that the disuse of parts results in their reduced size and their rudimentary quality, also that the result is inherited.

To sum up the matter, it does not seem that we are in danger of a toothless future, since teeth are always likely to persist in mammals, yet we can imagine a future state in which the teeth of man might be rudimentary, as in the calf. In fact, it is not uncommon

1. "The Cell in Development and Inheritance," p. 434.

2. Harwood: "New Creations in Plant Life," p. 342.

now for our wisdom teeth to be diminutive in size, or not to erupt at all. In structure our teeth are perceptibly rudimentary, and in consequence, they are lacking in power to live a normal, healthy life. In a former paper I stated that man can live, under civilization, a moderately normal and comfortable life without teeth. This is due to cooking and other methods of premasticating and preparing foods, but it is very much more desirable in every way to preserve our teeth as far as possible. Our specialty is making good progress in this direction, though one could wish our knowledge of prophylaxis in this line were greater, to the end that we would escape many diseases and much pain, handing down to progeny stronger jaws and better teeth.

DISCUSSION.

DR. EUGENE TALBOT, Chicago, said that there is no question but that we can produce a new species by mutilation, and that the jaws and teeth are affected by certain conditions that persist in this county and abroad. Perhaps no better illustration of the inheritance of acquired defects can be found, he said, than that seen in the Boston terrier. Dr. Talbot spent some time studying that animal and declared that it is a singular thing that the inheritance of acquired defects is more beautifully illustrated in this than in any other animal he ever studied. The Boston terrier is about twenty-five years old, it is a cross between an English bull dog and an English terrier. Environment and breeding have produced this new race. These dogs used to have normal tails, and twenty-five years ago the parent dogs had their tails cut off, and by breeding in and in, the present breed with greatly deformed tails has been produced. Professor Wiseman believes deformities are not inherited. Dr. Talbot has many times shown the inheritance of acquired deformities. He has cut off the tails of mice and bred these animals in and in, and in the seventh generation mice have appeared without tails. If he were a young man he should breed dogs with cleft palates and hare lips. If any young man who is ambitious and were to take up this thing, in a few years he would be able to produce a new class of animals. In regard to the jaws and teeth, in some places dentists are in the habit of extracting the first permanent molars, but Dr. Talbot believes that the continual extraction of the first permanent molars, in eight or ten generations will shorten up the jaw. He knows this is possible, because the face, jaws and teeth are degenerating. The constant extraction of the first permanent molar as has been done in certain localities has been shown to produce people with deformed jaws, arrest in development, and irregularities of the teeth. The fact is, the face, jaws and teeth are degenerating for the benefit of the brain under the law of economy of growth laid down by Aristotle, who first discovered the inheritance of acquired defects. Decay of the teeth is a natural process in the evolution of man, and when there is an abnormal nervous system, as in degenerates—in the idiot and in the deaf, dumb and blind asylums—the teeth degenerate very rapidly, indeed. Teeth decay to a greater extent in England than in any other country, due to the fact that the English are a little farther along in the line of evolution.

DR. M. L. RHEIN, New York City, referred to the discussion on this subject at Portland, last year. He considers the key note of the situation to be Dr. Fletcher's statement that according to Burbank it is unquestionably proved that acquired defects can be transmitted. This, he said, removes at once all the contention that appeared between Dr. Fletcher, Dr. Talbot, and himself in last year's discussion. At that time, in reference to Dr. Talbot's point as to the eventful dentureless condition of the human race, Dr. Rhein took the position that such a condition would never exist, because something would always intervene that would interfere with any such deterioration in the physical condition of the race as a whole. He thought that the trend of this discussion illustrates the correctness of his remark on that occasion, because, if, according to Dr. Fletcher, acquired defective conditions can be transmitted, it follows as a logical sequence, that restorations of malformations of the maxillæ and teeth can be transmitted in a like manner. The superiority of American dentistry during the past three-quarters of a century has induced in this country an increased attention to the preservation of the natural physiologic condition of the hman mouth. Dr. Rhein believes that the mission of American dentists for the regeneration of mouth defects has just begun. The lack of appreciation of the value of the preservation of the first permanent molar by the majority of dentists during the past fifty years has had a very important bearing on the oral deformities met with at the present day. We are just beginning to see, according to Dr. Talbot's well-defined ideas, the effect of transmitted acquirements of such defects. Something, however, has occurred effectually to stop this destructive tendency. The instrument which has intervened not only to prevent any further retrogression from the normal condition but which has become a huge instrument tending toward the restoration of abnormal mouths to the normal physiologic state, is the advanced school of orthodontia, instituted by Dr. Angle. These men have succeeded, not only in calling the attention of the dental world to the necessity of the preservation of the first permanent molar, but have so simplified the work of orthodontia and placed it on such a scientific plane, that the results in the shape of physiologic mouths restored from deformity and malformation are no longer a rarity but a very frequent occurrence in every part of the civilized world where the graduates of this institution have seen fit to locate. The normal development of this condition means in the future that human mouths will approach more nearly to the physiologic than they have in the past few hundred years.

PHYSICAL ECONOMICS.*

[Comprising a mathematical formula for the normal earning ability of the body by which, with the requisite data a person may be either rated, or his economic value may be ascertained, and thereby damages to his body from injury or disease, with an indemnity to be allowed therefor, may be determined in a manner equitable to all concerned.]

ERASTUS EUGENE HOLT, A.M., M.D., LL.D.

PORTLAND, MAINE.

An oculist, when called on to ascertain damages to the eyes from an injury, frequently meets with other disabilities of the body which occurred at the same time. If he works in connection with other physicians and surgeons who are to determine damages to other parts of the body, it is highly important that there should be standard methods of procedure which can be applied to every system and organ of the body so that each may understand the other and work together to obtain results on a scientific basis. The object of this paper is to promulgate methods by which this may be accomplished in a manner equitable to all concerned.

The problem is a mixed one, inasmuch as we must have a method for ascertaining the economic value of a person both before and after he has been damaged from injury or disease. All recognize the importance of scientific methods for solving this problem, but no one has had the temerity to attempt to overcome the difficulties surrounding it. It occurred to me, however, while I was disabled from an injury, received in 1903, that if, when the eyes were damaged, the remaining earning ability could be determined by a mathematical formula, based on the principles employed in the natural sciences in measuring any power, as had been done by Magnus[1] of Germany, the principle might be utilized for the whole body. I, therefore, spent many of the long weary hours of my disability in thinking how this

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. "Visual Economics," by Dr. H. Magnus of Breslau, Germany, translated with additions by Dr. H. V. Würdemann, Milwaukee, Wis.

could be accomplished. After I had adapted the principle to the whole body, it seemed so simple that I wondered if some one had not solved the problem in a similar way. On making inquiries in connection with the reprints of my papers among many persons I have failed to find any one who had solved the problem in this manner.

Professor Seaver, formerly director of the gymnasium of Yale University, replied:

I wish to thank you for a reprint on "Physical Economics" . . . which strikes me as a very valuable contribution on a subject to which I have given considerable thought without being able to arrive at definite conclusions, and so I have never published anything. You have hit on a practical method of rating a man's physical utility so far as the physical side of him is concerned, as mental rating is given by intellectual tests, so that we may have a fairly accurate mathematical statement of his probable worth to society.

Professor Bowditch, of the Harvard Medical School, with several others, referred me to "Vital Statistics: a Memorial Volume of Selections from the Reports and Writings of William Farr, M.D., D.C.L., C.B., F.R.S., edited by Noel A. Humphreys." Dr. Farr spent his life in the Registrar-General's office of England, where by his writings on vital statistics and allied subjects he rendered one of the greatest services to his country that ever fell to the lot of man, and which made him an authority on these subjects throughout the whole civilized world.

In this work, under the head of "Cost and the Present and Future Economic Value of Man," we find: "The characteristics of life property in wages and in income from professions, commerce, trades and manufactures is that it is inherent in man and is the value of his services—of the direct product of his skill and industry. In slaves it is vendible and transferable; in freemen it is inalienable; but is not the less on that account property which in the early states of society is assessed and taxed in the form of personal services. It is combined with stock in all production; and the proportion of the elements varies in every kind of product. The labor of the parents and the expenses of attendance, nurture, clothing, lodging, education, apprenticeship, practice, are investments of capital, at risk extending over many years; and the return appears in the form of the wages, salaries or income, of the survivors, commencing at various ages, 12, 15, 21, 24, 30, 33, 36, 39, and ages still greater; for the incomes in the higher professions increase probably up to the age of 50 or 55. The outgo increases from infancy up to a certain age; the earnings then commence, and ere long equal the outgo; they are subsequently in excess throughout manhood, and at advanced age decrease, until they are extinguished amidst the feebleness and infirmities of old age. The present value of the person's probable future earnings, minus the necessary outgo in realizing these earnings, is the present value of that person's services. Like capital invested in the soil, in the vintage, or in a commercial adventure, the capital invested in the life of man returns, in happy natures, profit of a hundredfold; in other cases fifty, twenty, tenfold; in others it is barely returned; in some it is entirely lost, either by death, sickness, vice, idleness, or misfortune."

On the "Economic Effect of Death by Different Diseases," he says: "Life has a pecuniary value. In its production and education a certain amount of capital is sunk for a longer or shorter time, and that capital, with its interest, as a general rule, reappears in wages of the laborer, the pay of the officer, and the income of the professional man. At first it is all expenditure, and a certain necessary expenditure goes on to the end to keep life in being even when its economic results are negative.

"The value of any class of lives is determined by valuing first at birth, or at any age, the cost of future maintenance, and then the value of the future earnings. Thus proceeding, I found the value of a Norfolk agricultural laborer to be £246 at the age of 25; the child is by this method worth only £5 at birth, £56 at the age of 5; £117 at the age of 10; the youth £192 at the age of 15; the young man £234 at the age of 20; the man £246 at the age of 25, and £241 at the age of 30, when the value goes on declining to £138 at the age of 55, and only £1 at the age of 70; the cost of maintenance afterward exceeding the earnings, the value becomes negative; at 80 the value of the cost of maintenance exceeds the value of the earnings by £41. These values may be compared with the former cost of slaves in Rome, in the United States, and in the West Indies.

"The amount of capital sunk in the education of professional men is not only greater, but it is probably at greater risk, and it has to remain longer under investment before it is returned. The maximum value of such a man is attained later in life, probably 40; and in the highest orders of the church, law, and politics, where experience and great weight of character are requisite, the life still increases in value at higher ages."

This method employed by Dr. Farr, and other high authorities, for ascertaining the present value of a person, at any age, must be accepted as the correct one for determining the economic value of a human being. It necessarily involves a knowledge of the bodily functions, for on the physical condition of a person depends his prospective earning ability; therefore, an examination of the body must be made to decide whether it is in a condition to meet the expectations of a working life at that age. If the examination revealed conditions which are known to lessen the expectation of life, then this fact must be taken into consideration in the calculation and materially modifies the results.

The present value of the net yearly earnings of a person for a prospective working life is the sum of these net earnings when discounted at the rate of interest, used in the computation, compounded for each of the series of years before they will be realized. This makes the interest account of very great economic importance in the problem, because the present value of any sum, due any number of years hence, depends on the rate of interest per annum and the number of years before it becomes due. The present value is very much less when a high rate of interest is used than when a low rate of interest is used in the computation, for it is the reverse of a sum to be realized at compound interest in the future.

In the computation carried out in the work of Magnus already referred to, the gross earnings are taken and multiplied by the years of the prospective working life as a base on which to determine the damages. It is manifestly wrong to take the gross earnings of a person for a base on which to determine damages to his body, for if a man was totally disabled he should, according to this method, receive an indemnity equal to his gross earnings. We must keep constantly in view that the solution of this problem is based entirely on the present economic value of a person, and that this economic value must be determined from his age and his net annual earning ability for a prospective working life at

a rate of interest to be realized on a long time, as we have shown by a quotation from the writings of Dr. Farr, whose authority is recognized throughout the civilized world. There might be fixed a value for a person whose earnings only equalled or were less than his expenses in realizing those earnings, but it would have to be estimated on a philanthropic and not on an economic basis.

The method employed by Dr. Farr for determining the present value of a person from the net yearly income of his normal earning ability has much in common with the principle employed in life insurance, and, therefore, is just as accurate and reliable in its results, especially when obtained with the same care as to all the details. The economic value of a person at the time of the accident is the base on which to compute his economic loss. After we have ascertained his remaining earning ability in the form of a fraction of the normal, the economic loss may be obtained in dollars and cents.

For the purpose of determining the remaining earning ability of a person damaged from injury or disease, we need a mathematical formula for the normal earning ability of the body.

In the analysis of a person to determine the elements which are indispensable for his normal earning ability and which may be used as factors to express them in a mathematical formula, we find that the functions of the body in a fairly normal condition are of first importance. This constitutes the functional ability of the person and the factor of first importance in the formula.

A person would be of very little use, economically, in the world without having had that training of the mind and body which would fit him to follow some occupation successfully. This constitutes the technical ability of a person and the second factor in the formula. With the functional and technical ability of the first order, there is another element of a person of considerable importance, namely, his ability to secure and perform the duties of an occupation successfully. It makes no difference whether his services are rendered direct to the general public or through some employer; his success depends on his ability to obtain work and to serve those who employ him. This constitutes the competing ability of a person and the last factor in the formula. Therefore, the three elements of a person which are absolutely indispensable to his normal earning ability are, first, the functional ability; second, the technical ability, and, third, the competing ability. This analysis of a person includes everything needed in the performance of the duties of any occupation. It may, therefore, be considered complete, and, moreover, it is in accordance with the principles employed in the analysis of any physical force by which its efficiency is determined. The acceptance of this analysis of a person is of prime importance to an understanding of the mathematical formula for the normal earning ability of the body, because its object is to determine the essential elements which may be used as factors in the formula.

In a similar way that much-used substance called electricity has been analyzed; the unit of the electromotive force being designated as a volt, which is a current of one ampere, with a resistance of one ohm. The amount of electricity is obtained by multiplying these three elements together, producing a composite quantity called watts, 746 of which make a horse-power. By using the first letter of each word this process is represented in the formula W = V A O. When, however, electricity is obtained by this standard of resistance, its efficiency is determined by multiplying volts by amperes, and the formula thus simplified is W = V A.

In a similar manner if we use the first letter of the prominent word in the analysis of a person, F = the functional; T = the technical; C = the competing, and E = the earning ability of a person; hence E = F T C, the mathematical formula for the normal earning ability of the body.

These three factors are not of equal value, although the efficiency of each is interdependent on the other, F being first in importance; T second in importance; whereas C is least important, because it depends on the other two and the conditions of the labor market. The competing ability is composed of the same elements as F and is modified to a similar but less extent when F is impaired. It is also modified by T and the way employers and the public consider the person, especially when he has been damaged by injury or disease. Therefore, to meet all these conditions, C must be placed under a radical in the formula, the index of which may be designated by an X to indicate that it is to be determined in each instance, and the formula thus modified is $E = F T \sqrt[x]{C}$.

To amplify the formula,[2] F must be resolved into its component parts by selecting and grouping into the form of units such systems and organs as are so interdependent that each is needed to insure the functions of the other in its particular unit, and these systems and organs taken together form a unit that is absolutely indispensable to the functions of the body. These units are to be regarded as factors of F, which when multiplied together, and by the other two factors of the formula, produce the composite quantity E. As much as possible, systems and organs have been selected and grouped together as units in accordance with their development and associated functions, it being found necessary to have four such units for the whole body, which when designated by the first four letters of the alphabet are as follows:

a = Osseous, articular, and muscular systems, consisting of: e, the bones, f, the joints, g, the muscles.

b = Circulatory and respiratory systems, consisting of: h, the heart, i, the vessels, j, the lungs and their accessory organs.

c = Digestive and genito-urinary systems, consisting of: k, the alimentary canal, l, its accessory organs, m, the kidneys with the genital organs.

d = Cerebro-spinal systems, nerves and ganglia, consisting of: n, the brain, its membranes, and its nerves; o, the spinal cord, its membranes, its anterior motor, and its posterior sensory nerves; p, nerves and organs of special sense; the sympathetic nerves and ganglia.

Each of these units fulfills the requirements of our definition: it is composed of systems and organs so interdependent that each is needed to insure the functions of the other, and these taken together form a unit that is absolutely indispensable to the functions of the body. This being true, the value of the function of each unit may be obtained by a formula similar to that employed in determining the value of any physical force. In amplifying F, by resolving it into its component parts, as factors, a, b, c, d, each of these was resolved into its component parts, as factors, and a = e f g; b = h i j; c = k l m; and d = n o p.

In any computation, if one of the factors becomes O, the product is O. In diseases of the bones, like osteo-

2. The remainder of this discussion of the formula is from my article in the second and enlarged edition of the Encyclopedia Americana.

malacia, producing an inability to support the body, e would become O, then a = O; in inflammation of the joints, like chronic articular rheumatism, causing a large number of stiff joints, f would become O, and a = O; in diseases and injuries producing paralysis of the muscles, g would become O, then a = O, and finally, in diseases and injuries by which a large portion of the extremities were lost, a certainty would become O, and if a = O then F = O. In serious valvular and organic diseases of the heart, or vessels, h or i would become O, then b = O; in serious diseases of the lungs and their accessory organs, j would become O, then b = O, and if b = O, then F = O. If the various serious diseases of the alimentary canal, its accessory organs, the kidneys with the genital organs, each of k, l, m, might become O, then c = O, and F = O; and in the various serious diseases of the brain, spinal cord, and organs of special sense, each of n, o, p, might become O, then d = O, and F = O, and finally, if F = O, then E = O. Therefore, the parts of each unit, as factors, bear the same relation to the unit, as the units, as factors, do to the whole body. Each part, as factor, is indispensable to the other, and each unit as factor is indispensable to the body. The units are always to be regarded as factors of F, and multiplied together and by the other two factors of the formula, if we are to conceive of the earning ability of the body as a whole which can be given a mathematical expression. Our formula represents, mathematically, the complete earning ability of the body in a healthy normal person, which is a composite quantity, resulting from the multiplication of factors; the same as was done in obtaining the efficiency of electricity.

As has already been shown, when F is resolved into its component parts, as factors, it is represented by (a b c d) and $\sqrt[x]{c}$, becomes $\sqrt[x]{(a\ b\ c\ d)}$, because C is composed of the same elements as F; hence the complete formula for the normal earning ability is $E = (a\ b\ c\ d)\ T\sqrt[x]{(a\ b\ c\ d)}$. Now in this formula the units, or factors, are not of equal value, and, hence, when damage to them has been ascertained by scientific standards of measurement they may be placed in the formula under a radical, the index of which will depend on how much less it is desired the damaged units shall affect the formula than that given to them by scientific standards of measurement. The unit, d, representing the cerebrospinal systems, nerves, and ganglia, would under almost all circumstances be placed in the formula at its full value, as determined by scientific standards of measurement, as any damage to it produces in the person thus affected proportional disability for all gainful occupations.

To ascertain the remaining value of a unit in a given case of damage, it must be compared with some scientific standard of measurement, and the remaining value given in the form of a fraction of the whole unit. This method, which permits of the mathematical determination of each unit of the bodily function, as a fraction of the normal unit must be considered complete, as it is in accordance with the principles laid down by the natural sciences in measuring the power of any physical force, one of which, that of electricity, has been given.

"The four units of F, or their remaining value, after being damaged, must always be regarded as factors and multiplied. Their product is a composite quantity—the earning ability of the body. They must never be regarded as quantities to be added, for wrong practical deductions would be obtained, as the following will clearly show:

In the formula, $E = (a\ b\ c\ d)\ T\sqrt[x]{(a\ b\ c\ d)}$, let us suppose that from an injury a person was rendered blind and deaf, and that, therefore, the unit, d, becomes O. It is self-evident that a person in this condition would have no earning ability, and yet, if we add the remaining units, a, b, and c, which might be normal, we would obtain three-fourths of the earning ability of the body, which results in a *reductio ad absurdum*. With a, b, c, d, of our formula regarded as factors, to be multiplied, however, when d, or any other factor, becomes O, the product is O, also, and no absurdity results, because in any computation, if one of the factors is O, the product will always be O. If a person has no technical ability, T would be O, and, therefore, E = O. This would be true in actual practice. Finally, if we decide that a person has no competing ability x = O, and E = O, and this would be true in the labor markets, notwithstanding the bodily functions might be normal and the technical ability might be of the highest order, yet if the person's services were not needed and he could not dispose of them at any price, his earning ability would be O. Therefore, in our mathematical formula for the normal earning ability of the body, if any one of the units as factors becomes O, then E = O, and no absurdity results. We have, at some length, dwelt on F, of our formula, because it is the most important factor in it. We now pass on to T, the next in importance.

The technical ability of a person is usually gained during adolescence, and is generally attained by the time the growth of the body is completed. The formula may be used as a guide during the years of growth and development and serve to rate the youth, taking into consideration the condition of the functional ability on which the mental and technical ability so much depend, but which has been heretofore practically ignored. As important as T is to the normal earning ability, and in rating a person, when that person's vocation becomes fixed, T may be considered as equal to one in estimating damages. The technical ability is not injured, but limited only in proportion to the damages to F, impairment of which will include these damages; therefore, T may be omitted, and the formula thus modified for determining damages to the earning ability of the body is

$$E = (a\ b\ c\ d)\ \sqrt[x]{(a\ b\ c\ d)}$$

We now come to C, the third and last factor of our formula. The ability to compete is a condition which is affected by a variety of circumstances; first, by the person's functional ability; second, by his technical ability; and, third, by the way employers consider these conditions, together with the supply and demand for labor. Therefore, when a person becomes disabled, the damage to his body acts immediately in two ways: first, by its direct impairment of the functional ability, according to the nature and extent of the damage by reason of which he will not be able to perform so much, and perhaps not so good work, as he did before; and, second, by the way employers consider these conditions. The damage to the body might be of such a nature as to effect the appearance of the person without interfering materially with his earning ability; such as in the unit a, loss of the auricles, or nose; in the unit d, a large scar of the cornea, or an injury to a blind eye causing it to become crossed. Disfigurements like these, although not interfering with a person's ability to work as well as he did before the damage was done, would seriously interfere with his chances to obtain employment, and should, therefore, be considered a serious obstacle to his

competing ability. In case of damages, a person has a right to secure compensation, not only for the loss to his functional ability but also to his appearance, when it seriously interferes with his ability to obtain employment in the grade of work and command the wages to which he is entitled. The part of his ability to compete not represented in the person himself, but in the way employers consider the damages we render in the number selected for the index of the radical of the competing ability. In general, if a person has no competing ability we would select 0; if it is seriously affected we would select 2 or 3; if only moderately affected 5 or 7; and if but slightly affected 10, for the index of the radical of the competing ability. By leaving this to the physicians who have ascertained the damages to F, and who are the most competent to judge what it shall be, disabilities of the body, and an indemnity to be allowed therefor, may be determined in a manner equitable to all concerned.

The higher mathematics involved in the extraction of the roots of the radicals are avoided by the construction of a chart by Prof. Hart of the University of Maine, by which geometric curves represent the different roots; the value of the abscissa being given at the top and bottom, and that of the ordinate on either side. By taking the remaining decimal value of the unit of the body, as abscissa, and tracing the line to the geometric curve representing the root sought, and from this point following the ordinate to its end on either side, the value of the root will be found. Inserting this value in the formula, the process of finding the remaining earning ability and thereby the damages to the body is one of simple computation, involving no more mathematics than an example in interest or partial payments.

Although it is true that scientific standards of measurement of all the parts of the units of the body have not been determined and agreed on, nevertheless it is a self-evident fact that anything that is used must have a value placed upon it, and when this value has been measured, tested, compared, and estimated in a scientific manner, in a large number of normal healthy persons, and an average value ascertained, this average value becomes a scientific standard of measurement for that particular part of the unit of the body. It is in this way that all the scientific standards of measurement, now employed, have been determined and agreed on, and it is in this way that all the remaining ones must be established. Until this work is consummated we shall have to employ such standards as have been agreed on, and by the same methods by which these have been obtained determine values for all the remaining systems and organs of the units of the body which will eventually be accepted as scientific standards of measurement.

In ascertaining damages to the body, a physician must first determine what the impairment of the function of the unit is, and then, by comparing this with the case record and the scientific standard of measurement for it, give the remaining value in the form of a fraction of the whole unit in the formula. The principles and process then are the same as those employed in determining the efficiency of any physical force. It will be seen that it is the damaged functions that the physician first seeks, and not necessarily the pathology of the damaged unit. To illustrate this, a physician might in examining the eyes find the sight seriously impaired, the fields markedly contracted, and the muscular movements badly deranged. He could determine the exact functional disability of each of these units of the eyes by the scientific standards of measurement for them, and give the remaining value of each unit in the form of a fraction for the Magnus formula, and thereby ascertain the remaining earning ability of the eyes without knowing the pathology of the disabilities. The exact nature of the disabilities could not be determined without instituting an examination which would reveal their pathology, and therefore the physician could not state whether the disabilities were temporary or permanent without such an examination. The pathology of a disability is necessary only to determine its character, whether transitory or permanent, serious or not, as the case may be, and should not be made the basis to determine the remaining earning ability of the body. The earning ability is a composite quantity made up of the physiologic functions of the systems and organs of the units of the body, each of which is interdependent on the other in making man the most wonderful product of nature.

In youth and the beginning of manhood, we can only rate a person according to his functional and his technical ability, but when that person has a fixed occupation we can, thereby, determine, by our formula, his earning ability and his economic power in the world as accurately as we can that of any physical force. We can determine his mental ability only so far as it is manifested in his vocation and the importance placed on it as evidenced in the remuneration he receives for it. We can not figure on possible prospects of advancement, nor change of occupation. We can only figure on the actual conditions of life as they exist, and when accidents occur, causing damage, on the supposition that these conditions would continue for a length of time thereafter according to the basis on which the American experience table of mortality has been constructed and on which has been established life insurance—the first business of the world.

The value of the functions of the body cannot be determined, for health, like character, is priceless. Even the possession of health much below any economic value is priceless, and is clung to under all conditions of privation and suffering. This does not affect the purpose of our formula, which represents mathematically the normal earning ability of the body. This has solely to do with the individual's ability to perform certain services and to receive a specific compensation therefor for the remainder of a prospective working life. No life insurance company would consider a risk on a man's life for an amount his business or wealth did not warrant. A man who has no income whatever and could offer no collateral would be refused a loan of money from any person, or bank, and he could not obtain money except by reasons which are foreign to the rules of business. A person with good habits and a steady occupation with a specified income would be able to hire money on that alone, in proportion to his income, other things being equal. The time is coming when the earning ability of man will be rated and will be just as valuable in the labor market as in the rating of his financial ability to-day in the business marts of the world.

We will now proceed to illustrate the use of the formula in the case of a young man whose eyes were severely damaged and the right hand badly burned by a current of electricity sufficient to kill two men instantly.

W. O'B., aged 20, mill employé, June 22, 1900, while standing on an iron platform and handling a portable electric light, received a current of electricity sufficient to throw him down instantly. Two of his fellow-workmen who saw him fall quickly went to his aid and, in attempting to pull him away from the platform and the wire of the lamp, which was bura-

ing his hand, both were killed instantly. The electric current was shut off as soon as possible and Mr. O'B. was extricated from his perilous position. Dr. G. F. Webber of Fairfield, Maine, was called to attend him and stated that the flexor tendons of the thumb and forefinger were burned off and the flesh of the other fingers was burned severely. The hair and scalp to the size of a silver dollar were burned off where the back of the head rested on the iron platform. He was unconscious for seven or eight hours after the accident.

There was evidence that the wires, of the electric light company, outside the mill became crossed in the mill yard, the primary wire carrying a current of 2,200 volts.

When the wound healed the thumb became adherent to the forefinger so he was unable to grasp anything between the forefinger and the thumb. His sight was seriously affected, and he came under the care of Dr. J. F. Hill of Waterville, Maine. He also consulted Hon. Charles F. Johnson of Waterville to ascertain how he might recover damages for his injuries.

On Sept. 13, 1901, I made an examination of Mr. O'B. with the following results: Vision right eye 0.1, no improvement with lenses. Vision left eye 0.4, no improvement with lenses. Corneal astigmatism right eye, 1 D. at 90°; left eye, 0.8 D. at 90°; abduction, 4°; adduction, 14°; esophoria, 5½°; sursumduction right eye, 3°; left eye, 3°. Deciphers type No. 10 (3½ mm. in height). The right field of vision was contracted 30° on the temporal side and 20° above, below and on the nasal side. The left field of vision was contracted about 10° in all directions. No limitations of the muscular movements were recorded.

Examination of the interior of the eyes showed the media fairly clear, so that the retina and optic nerve of each eye could be seen readily. It was evident from the ophthalmoscopic appearance that both the nerve and retina of each eye, especially of the right eye, had suffered from inflammation, but, of course, there was nothing in the slight changes to indicate the cause of it or when it may have occurred.

He was examined again on Dec. 27, 1901, and his condition was found to be about the same as here recorded.

The suit was brought for $5,000, and the trial took place at Skowhegan, Maine, in December, 1901, Hon. A. S. Littlefield of Rockland being the attorney for the pulp mill company. Mr. Littlefield consulted me about testifying for the defense. After I stated to him I was engaged, and the substance of my testimony, he did not engage any one to testify as to the condition of the eyes, but engaged Dr. W. P. Giddings of Gardiner, Maine, to testify as to the physical condition of Mr. O'B. After a trial of several days the jury rendered a verdict for Mr. O'B. of $3,271. This verdict was set aside afterward, because of the erroneous ruling of the judge who held the pulp mill company liable for negligence of the electric light company which supplied the electricity.

As to the verdict and a new trial Mr. Johnson writes me: "I am, of course, very much disappointed that the verdict should be lost on what really had nothing to do with the decision of the case, for if the jury had been correctly instructed by the court, I feel very certain that the result would not have been changed, but as attorneys, we have to learn to take the bitter with the sweet. I intended to try the case the second time, but the young man's brother-in-law, who was able to furnish him some financial assistance, died, and in the meantime the young man's hand was operated on in the hospital at Augusta, where I got him a free bed. After the operation he was able to use it more than before and found employment in the woolen mills at Fairfield at the same price per day which he had received in the pulp mill. He never will, however, have a good hand, and the work about which he is employed in the woolen mill does not call for very much use of his hand. Certainly through the remainder of his life he will not have more than one-half the use of that hand. The last time I saw him in 1905 his eyesight was no better. When he undertook to read or look at an object steadily, or for any length of time, his eyes manifested very marked signs of weakness. For the work about which he is now employed it is not necessary that he use his eyes very much. I think otherwise he has been in good health and has continued to work in the woolen mill.

"The insurance company[3] made an offer of $1,000, which could not be considered in any light adequate compensation for his injuries. However, he had no money to continue litigation, and he was able to work some, and there were troublesome questions of law about the liability of the defendant company, as well as the question about collecting an execution from the pulp mill, I thought it best to accept the offer.

"Since I heard your lecture on physical economics at Waterville I have been very much interested in the subject. The question of what are adequate damages for personal injuries is always a very troublesome one for the courts, and the juries have no certain guide to go by. It seems to me that you have developed a practical method for rating a person and for determining damages to the body from injuries or disease, and I shall hope to see it in daily use in the near future."

The position I took at the trial was that, inasmuch as Mr. O'B's eyes had never been examined and there was no record of the condition of the eyes before the accident, I could only state the condition I found them in, and the probable effect this would have on his future earning ability. In answer to a question as to the probable effect of a current of electricity of high voltage on the brain and organs of special sense, I replied that it could not be definitely determined without a carefully made record of the condition of a person before it passed through these organs, but in this case, inasmuch as two of Mr. O'B's comrades were killed, instantly, by the current which must have passed through his body to them, and there was no history of weak eyes to offset the claim that his eyes were good and strong before the accident, it was fair and equitable in my opinion, to assume that they were good before the accident. This testimony was acceptable to both parties to the suit.

In determining the damages to Mr. O'B. in consequence of the partial loss of the functions of the eyes, it was necessary to consider the loss of central and peripheral vision. Central vision was reduced to 0.1 normal in the right eye, and 0.4 normal in the left eye. As normal vision according to the standard of measurement is not essential to mill employés, that is, a large number of them earn and receive full wages when vision is very much below this scientific standard of measurement for normal vision, it could not be assumed that the fractional part of the loss of vision lessens the earning ability of the eyes to that same amount. At the time of the accident the American edition of Magnus' work had not appeared. I find, however, that my estimation of the effects of the loss of vision on the earning ability of Mr. O'B. at that time, correspond very nearly to the results obtained by the standard adopted by Magnus, as I assumed then from an examination of a large number of laborers of different vocations that one-half of the scientific standard of measurement for normal vision was sufficient for full earning ability, provided the fields of vision of each eye were nearly normal.

The loss in the field of vision in this case, especially of the right eye of 30 degrees on the temporal side, I regarded seriously as it is the same in amount as when one eye is entirely lost, and no matter in what direction Mr. O'B. looked there would be just so much narrowing of the field of vision, and a corresponding detriment in his ability to work in any vocation and protect himself from dangers without that are constantly menacing persons with such a disability. Considering the damages on this

3. The insurance company was one that insured the pulp mill company against liabilities for injuries to its employés and against the cost of defending suits to the amount of $5,000 in any individual case.

basis, I determined the economic loss to Mr. O'B's eyes 3/8 of the whole, and, therefore, the remaining earning ability 5/8. This corresponds closely to the results obtained by Mangus' method by which I figured it after the American edition of that work appeared.

As much as we all admire the work of Magnus, and the additions made to it by the translator and editor of the American edition, Dr. Würdemann, it is not satisfactory to determine damages to the eyes by one method, and damages to another part of the body, which were caused by the same injury, by an entirely different method, therefore I saw the necessity of adapting the principle employed by Magnus in his formula for the normal earning ability of the eyes to the whole body, and developed the mathematical formula for the normal earning ability of the body, the application of which to solving problems in cases of damages to the body from injury, or disease, with an indemnity to be allowed therefor, is the object for which this paper has been prepared.

In determining the remaining earning ability of Mr. O'B. by the mathematical formula for the normal earning ability of the body, we will ascertain the remaining earning ability of the eyes, first, which are a part of one of the factors in unit *d*.

The eyes, as Magnus has clearly demonstrated, have three factors which are absolutely indispensable to their normal earning ability, namely the central acuity of vision, the field of vision, and the muscular movements. Although these factors are not of equal value, and for that reason are placed under a radical in the Magnus formula, nevertheless if either one of the two lesser ones in value be totally destroyed the earning ability of the eyes likewise will be destroyed.

Mr. O'B's best eye, the left, which determines his central acuity of vision, was 0.4 normal scientific standard of measurement. Assuming that 0.5 normal scientific standard of measurement is sufficient for full earning ability, which is the standard adopted by Magnus for mill employés, he had lost 1/5 of the sight actually needed in this vocation, and therefore had 4/5 left, which is one of the factors of the coefficient of the unit *d*. The vision of the right eye was 0.1 of the normal scientific standard of measurement, and the loss in the field of vision on the temporal side was 30° of the normal scientific standard of measurement. If the binocular field is divided into three zones, as suggested by Schroeter, and practiced by Magnus, there will be six zones of 30° each, and as the outer zone of 30° was gone, there was 5/6 left, which in consideration of the serious loss of vision of this eye, should be placed in the formula at its full value as the other factor of the coefficient of the unit *d*.

The defect in the muscular balance of the eyes (esophoria) and the weakened accommodation were not thought sufficient to be taken into account in the calculation.

The objective damages to the body are included in the unit *a*. The damage to the scalp could be concealed by the hair and the real damage from this particular part was to unit *d*, which has already been determined.

The damage to the right hand was severe. In looking for a standard of measurement by which the loss of the function of the hand could be compared and its remaining economic value be determined, I feel sure that all who saw the case would agree that the disability was equal to, or greater, than ankylosis of the wrist, and his competing ability would be less than a person suffering from ankylosis of the wrist, because in ankylosis of the wrist, there would be no scar, or deformity, only the loss of motion, whereas Mr. O'B. had loss of motion and a bad looking scar of the hand. If this disability of the hand is considered equal to that of ankylosis of the wrist, for which the standard of the Bureau of Pensions of the United States is one-ninth of total disability and which I have shown in a paper read before the National Association of United States Pension Examining Surgeons, at Atlantic City, published in their transactions for 1904, is equivalent to 10 per cent. of total disability when placed in the mathematical formula for the normal earning ability of the body and the competing ability considered, we have 9/10 of the unit *a* left, which is its coefficient. Discarding all undamaged units of the formula, we have as an expression of the remaining earning ability of the body of Mr. O'B. when placed in the formula the following:

$$E = 9/10a\ (4/5 \times 5/6)d\ \sqrt[5]{9/10a\ (4/5 \times 5/6)d} = 0.60\ \sqrt[5]{0.60}.$$

It is necessary now to ascertain Mr. O'B's competing ability. His right hand was a bad looking one, and moreover its functions were not one-half what a normal hand should be, which would prevent him from obtaining employment in many occupations. Taking the objective disability of the right hand, and the subjective disability of his eyes, we choose 5, as fair and equitable for the index of the radical of his competing ability on a scale of 2 being used when the competing ability is the most seriously affected, and 10 when it is but slightly affected. We then have $E = 0.60\ \sqrt[5]{0.60} = 0.60 \times 0.905 = 0.543$: E = 54.3 per cent. Therefore, Mr. O'B.'s remaining earning ability is 54.3 per cent. of his normal earning ability, and, hence, his economic loss is 45.7 per cent. The loss in wages and other necessary expenses connected with the injury are as follows:

Two and one-fourth years' wages at $375	$843.75
Less $80 earned canvassing during this time	80.00
	$763.75
Physician's bill for services	208.00
Druggist's bill for medicine	30.00
Care and nursing, estimated	42.00
Cost of treatment at hospital estimated	58.00
Making a total of	$1,101.75

This should be added to the loss of the earning ability.

We will now proceed to determine the present value of Mr. O'B. at the time of the accident from his age and the wages he was earning. He was 20 years old and was earning $1.25 per day. Assuming he would work, on an average of 300 days in the year, his income would be $375. This would allow thirteen days each common and fourteen days on leap year for sickness or vacation. It is a close approximation to what ought to be actually realized.

The cost of maintenance, as Dr. Farr says, is an estimate, but it must be remembered that any transaction of man must have a value placed on it and when this value has been measured, tested, compared and estimated in a scientific manner, in a large number of instances and an average value ascertained, this average value becomes a scientific standard of measurement for the value of that particular transaction.

We need a standard of measurement for the economic value of man[4] in two vocations, the average laborer, and

4. The Bureau of Pensions of the United States has established $864 for total disability, for a soldier or sailor. As total disability requires the regular aid and attendance of another person it may be inferred that this amount represents the gross earnings of two persons, and, therefore, the earnings of one would be one-half of it or $432 a year, $36 a month, and $1.44 a day.

the average professional man. The first should be obtained from the wages of a laborer of average minimum capacity, based on his age, his physical condition and his income. The present value of the net income must be computed at a rate of interest that has been accepted as a standard for such computations, which we have assumed to be 3.5 per cent., as nearly all insurance values are figured at this rate.

As this has not been done in this country on an economic basis, we will accept Dr. Farr's standard for a Norfolk agricultural laborer, who at the age of 20, earned £23 a year, at the age of 25, £29 a year, and at the age of 30, £31 a year, and thereafter until the age of 60, £31 a year. Taking an average of £29 a year and reducing it to dollars and cents, we have $140.94. Dividing $375 by $140.94 and we obtain 2.66 as the ratio between a Norfolk agricultural laborer and the wages Mr. O'B. was earning. Multiplying the standard for the present economic value of a Norfolk agricultural laborer as determined by Dr. Farr on a basis of 5 per cent. per annum by 2.66, and we have a standard for an American laborer, on the same basis.

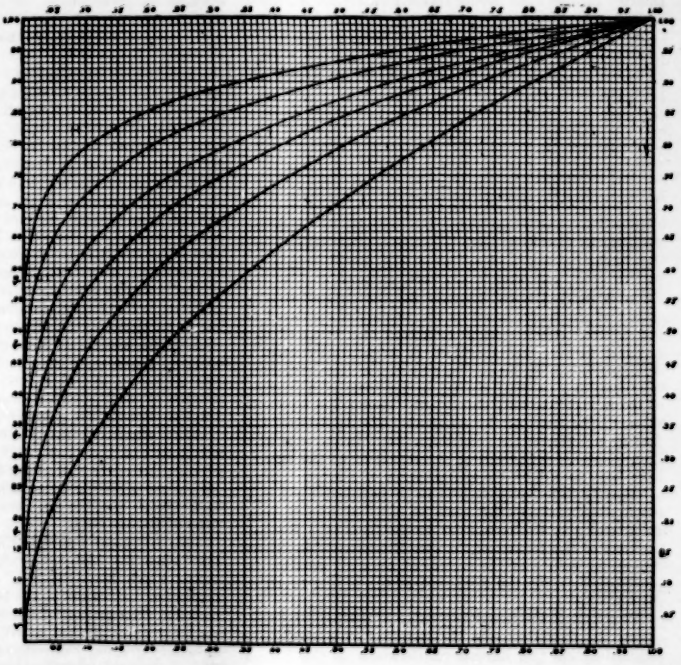
In another table Dr. Farr determines the present economic value of a Norfolk agricultural laborer on a basis of 3 per cent. With this and the 5 per cent. table, we obtain one on a 4 per cent. basis and with the 4 per cent. and 3 per cent. we obtain the present economic value on a 3.5 per cent. basis, which are as follows, from birth to 70 years of age. (See table top next column.)

Multiplying the present economic value for the age of 20, as here obtained by the percentage of the remaining earning ability of Mr. O'B., and we have the amount of his remaining earning ability. Subtracting this remaining earning ability from his present economic value and we have his economic loss, then adding his loss in wages and his expenses after the injury, and we have his total economic loss as follows:

$3,019.77 × .543 = $1,639.74; $3,019.77 — $1,639.74 = $1,380.03; $1,380.3 + $1,101.75 = $2,481.78, 5 per cent. basis.
$5,451.75 × .543 = $2,960.30; $5,451.75 — $2,960.30 = $2,491.45; $2,491.45 + $1,101.75 = $3,593.20, 3½ per cent. basis.
$6,295.74 × .543 = $3,418.58; $6,295.74 — $3,418.58 = $2,877.16; $2,877.16 + $1,101.75 = $3,978.91, 3 per cent. basis.

Thus we see that the total economic loss to Mr. O'B. varies according to the rate per cent. used in computing his present value at the time of the accident. To whichever amount that may be accepted as equitable, should be added such a sum for the suffering in mind and body, as may be warranted on philanthropic grounds.

Age Birth	Total	Died	English 5% basis $28.10	American 5% basis $89.43	3½% basis $119.54	3% basis $146.64
	513					
5	372	141	271.87	723.17	1,245.16	1,518.03
10	355	17	568.04	1,510.99	2,601.62	4,169.66
15	346	9	930.93	2,476.27	4,263.66	5,194.59
20	335	11	1,135.25	3,019.77	5,451.75	6,295.74
25	321	14	1,197.26	3,184.71	5,488.03	6,686.29
30	307	14	1,172.06	3,117.03	5,368.03	6,540.09
35	291	16	1,109.15	2,950.34	5,079.91	6,189.06
40	275	16	1,030.42	2,740.92	4,719.32	5,749.73
45	257	18	936.81	2,491.91	4,290.59	5,227.40
50	237	20	818.28	1,910.62	3,742.71	4,596.00
55	215	22	669.80	1,781.67	3,067.68	3,737.48
60	189	26	472.49	1,256.82	2,163.90	2,636.49
65	156	33	223.56	594.67	1,023.90	1,247.46
70	118	38	3.74	9.95	17.13	20.87
75	79	39	—119.31	317.37	—546.44	—665.75
80	44	35	—199.31	530.16	—872.74	—1,112.15



When these methods are accepted as a means of adjusting damages to the body from injury or disease, it will be necessary only to determine who was responsible for the accident that caused them, then the settlement may be made in a manner equitable to all concerned.

The amount for which suit was brought, ($5,000) in view of the serious damage to Mr. O'B., was not an unreasonable sum for such damages, as shown by his economic value at the time of the accident and from his remaining earning ability, as determined by scientific and economic standards of measurement, and the mathematical formula for the normal earning ability of the body. When the present value of Mr. O'B. is determined at the rate of 5 per cent. discount, the amount that

should be paid him is $789.22 less than the amount of the verdict rendered by the jury; when determined at 3.5 per cent. it is $322.20 more than that rendered by the jury; while at 3 per cent. it is $707.91 more than that rendered by the jury.

We believe that if the jury, in this case, could have had these methods, as here worked out, demonstrated to them, their duty would have been easier to perform and the results would have been more satisfactory to themselves. However, we have no criticism to make on the verdict rendered, considering the standpoint from which it was ascertained.

In determining a standard of measurement for the present value of a man in the United States, we believe that the wages earned by Mr. O'B. at the time of the accident, $1.25 per day, are an average minimum for this country and that the rate of interest of 3.5 per cent. per annum, may be accepted as a standard for computation.

Dr. Farr determines the present value of persons in professions on moderate incomes, earning £288 a year, or $1,399.78, practically $1,400, or $4.50 per day, interest 3 per cent., as follows:

1.	Age 25, economic value	$25,888.94
2.	Age 30, economic value	27,702.00
3.	Age 35, economic value	28,921.86
4.	Age 40, economic value	29,344.68
5.	Age 45, economic value	28,829.52
6.	Age 50, economic value	27,138.24
7.	Age 55, economic value	23,974.38
8.	Age 60, economic value	19,337.94
9.	Age 65, economic value	13,209.48
10.	Age 70, economic value	2,988.00

It will be seen by reviewing the methods by which the damages to Mr. O'B. have been determined, that every step in the process has been taken with a well-defined object in view, and that it has been accomplished by the use of a mathematical formula for the normal earning ability of the body, based on the principles employed in the natural sciences in ascertaining the value of any physical power, and therefore is scientifically correct. The two values to be determined in the case were first, his remaining earning ability, in the form of a fraction of the normal earning ability, and second, his economic value at the time of the accident. We determined the first by comparing the conditions found in the eyes with such economic standards of measurement of the eyes as have been found by the examination of a large number of cases by different observers to be sufficient for a mill employé to perform the work required of him successfully, and give the remainder in the form of a fraction for each of the factors of the eyes thus involved. These remaining values of the factors of the eyes were multiplied together for the coefficient of the unit *d* to which they belong.

We obtained the remaining value of the hand by comparing the disability with the standard of measurement established by the Bureau of Pensions of the United States for all minor disabilities, namely, ankylosis of the wrist, by which millions are paid to soldiers and sailors annually. We then had the remaining value of the damaged units *a* and *d*, as their coefficients, and discarding *b* and *c* because not considered injured, and therefore equal to one each, we have the formula complete for working, except the index of the radical of the competing ability. The number for the index of the radical of the competing ability is determined by a method based on principles as well defined as those employed in rating a person at school or college. With this chosen, we proceed to work the formula according to the principles upon which it is constructed, and obtained the remaining earning ability of Mr. O'B. in the form of a fraction of the normal earning ability as 54.3 per cent.

Thus every step of the process to determine the economic value of the damage to Mr. O'B. in consequence of the injury he received June 22, 1900, has been taken with a well-defined method of procedure, as that of weighing or measuring of any commodity and then multiplying the quantity by the price per unit of the standard of measurement for that commodity, in order to obtain its value. The final result then can not be questioned on the ground of the want of care in obtaining it, it can only be questioned on the ground as to whether the principles on which the methods are based are correct and give results that are right and equitable to all concerned.

On both of these points we have the highest authority, for my formula for the normal earning ability of the body is based upon the principles employed in the sciences in determining the value or efficiency of any natural power. It was employed by Magnus in his mathematical formula for the normal earning ability of the eyes. My work has been to adapt these principles to the entire body by selecting and arranging the different systems and organs according to their development and associated functions, that all the essential parts of the body may be grouped under four units, which may be used as factors of the functional ability in a practical workable formula as readily as though the principles were applied to but one organ at a time.

For the success and approval of this work, I have quoted from one of the many letters which I have received, because Dr. Seaver, as he writes, has spent a large part of his life in studying the body, to develop, measure, and utilize it to the best advantage. He has written one of the best works on anthropometry and physical examinations in the English language, and therefore his opinion is an authority on this subject.

As to the method of determining the present economic value of a person, I have quoted from the highest English authority, and therefore, of the world, because the science of vital statistics owes its existence largely to English writers, the greatest of whom was Dr. Farr.

After admitting the principles of the methods and every step of the process taken in the solution of this problem are correct, it might be argued that the final result is not equitable because Mr. O'B. has obtained work in a woolen mill for the same wages he received at the time of the accident.

This argument would be too fallacious to need refutation when the history of the case and the conditions under which Mr. O'B. now works are taken into consideration. He must at the best, always take an inferior position. The current of electricity which passed through his body was sufficient to kill two men, and the bad effects may gradually develop, thus farther disabling him. This is no small consideration in the problem, but it is not taken into account in the result obtained. We have endeavored to be conservative in every step of the process, and believe the result is obtained in a manner equitable to all concerned.

One important datum is lacking in the absence of a record of an examination of the eyes before the accident, and, therefore, we are unable to assert positively that the conditions of his eyes, as found after the accident, was due to the injury, but we are confident that the position taken is fully justified by the history of the case, and the nature of the injury.

We have gone into the details of this case at considerable length, because it illustrates how well the formula is adapted to working out the remaining earning ability

of a person when one or more of the units of the body has been damaged by injury or disease, and, therefore, it is a type of all such cases.

If Mr. O'B. had had a record of an examination of his eyes showing that they were normal prior to the accident, all doubt on this point would have been removed. This again shows the necessity of every person having a case record of his physical condition, for no one knows when he may meet with an accident and need it to determine just what the amount of the damage is from a given injury. If the history and examination revealed a suspicion that a part of a disability existed prior to the accident for which damages are claimed, and this should be, by further evidence in the case, established beyond a reasonable doubt, then the fact must be taken into consideration in determining the amount of the damages due to the accident. To avoid disputes and litigations every person should have a carefully made record from repeated examinations of his body.

This would be of great value to a person, not only in case of injury, but also in the treatment of any disease.

The progress of medicine is towards preventing, rather than curing diseases, and in order to make this practice more complete, the time is coming when physicians will be largely occupied in making these examinations and case records, and thereby preventing rather than curing diseases. There is nothing of more importance to be instituted in the science and practice of medicine for its welfare and advancement than the carefully made records of the physical and laboratory examinations of every person. To make them more effective they should be instituted when the child enters school, and be repeated at stated times during the whole period of school life. This would necessitate establishing a new officer, the school physician, not an inspector of the schools, but one who would take a child, analyze him, detect all abnormalties and in conjunction with the parents and other physicians correct them during school life, and thus have the body improved with the mind, that each may help the other to the fullest development. From these records data could be obtained which, when applied to the mathematical formula for the normal earning ability of the body, and worked out according to the principles on which it is constructed, would give the rating of a child, taking into consideration his functional ability on which his technical ability so largely depends, but which has been heretofore almost entirely neglected in rating him. With this work carried out during school life, it would soon demonstrate its own importance, by making these records of the highest value in the training of the mind and the body, the advancement of the race, for the promotion of health and the prevention of disease, and in furnishing data to determine damages to the body from injury or disease by the mathematical formula for the normal earning ability of the body, in a manner equitable to all concerned.

DISCUSSION.

DR. H. V. WÜRDEMANN, Milwaukee, said that one could talk for hours and still not convince some people that mathematics can be applied to this question. Some definite standard is needed in court. To say that a person has lost one-half his visual acuity means nothing; it is a matter of dollars and cents and one should be able to state that a man has lost a certain per cent. of his earning ability, a certain amount in dollars and cents. Such studies as those of Farr and Magnus have demonstrated that mathematics may be applied to determining the functional ability of man to compete with his fellow. It has been demonstrated, mainly through the German observers, that there are definite visual factors which may be damaged, and which damage may have a definite influence on the earning ability. In court two questions arise: a question of fact and a question of opinion. If an opinion be generally accepted by any profession it has almost as much weight in court as a fact. We will not for many years reach a position in which these formulæ will be received as the general opinion of the profession, yet even now they have some weight. There is a remarkable similarity of results obtained by the method of Magnus and Würdemann to damages given in several hundred suits that he has studied; a remarkable similarity in the amount given empirically to that found by mathematical standards. Dr. Holt's paper goes very far into the future. It will be a long time before such an opinion will be favorably received by the general profession and accepted by courts and juries. He thought that the citation of the case of Mr. O'B. was rather unfortunate, inasmuch as he was able to earn practically the same amount after the accident as before. What we need now is statistics and each one can contribute to the literature one or more cases showing the amount of earning capacity after a certain accident. It is only by such evidence that we will be able ultimately to determine exactly the percentage of loss of earning ability following a given accident. At the Ophthalmological Congress at Lucerne three men were called on, one to represent France, one Germany and one the American and English, to get what evidence they could and endeavor to establish some standard whereby to determine the resulting loss from injury to an eye. In Great Britain the loss is placed at 50 per cent. for one eye. A man earning 28 shillings 4 pence a week got his 50 per cent. relief and in addition 38.3 per cent. from a fraternal society, so that it paid him to be sick. The Germans allow 33 1-3 per cent. insurance for loss of one eye. He did not think he could go as far as Dr. Holt until we have accumulated a great number of statistics on the subject. It is only by an accumulation of such statistics, where individuals suffering certain accidents have been damaged in a definite pecuniary way, that we can arrive at an opinion in the matter that will be received by the courts as a statement of fact.

DR. L. WEBSTER FOX, Philadelphia, said that these questions are of very great importance to ophthalmic surgeons located in manufacturing centers. Some system is needed by which an opinion can be formed as to the value of an injured eye, arm or leg. Unfortunately for statistics in America, accident cases are taken up by unscrupulous attorneys and fought on a contingent-fee basis, and many of these cases are settled out of the courts. In Philadelphia are very large manufacturing interests, and it is important to the ophthalmic surgeon that some set of tables be prepared in a manner in which he can use them for reference of value. At the Baldwin locomotive works 17,000 men are employed; the Medico-Chirurgical Hospital receives a large number of the accident cases; but by a system of their own they prevent the cases from getting into the courts. There are many other cases in which it is a difficult problem to settle the damages. Recently he saw a case in which both eyes were destroyed and the plaintiff received the sum of $10,000 from a sympathetic jury; the accident in this case was partly due to the man's own negligence. Now when an opinion is asked, the physician can at least give the courts an idea of the value of the earning ability of such an individual by referring to Holt's system of valuation, thereby giving a *pro rata* share of his loss. Each occupation, of course, is a law unto itself and differs in degree; some men receive $20 or $30 a week, others $10 or $15. He believes that the movement is a practical one and should be taken up by the association, for it lessens the power of a jury to determine the value of a lost eye in such cases.

DR. EDWARD JACKSON, Denver, said that a mathematical formula is simply a method of stating some fact. An enormous number of facts that we do not think of as having anything to do with mathematics can be stated in rigid mathematical formulæ. To study these facts in any way is to render them clearer in our own minds, and on this account he thinks we ought not to leave these formulæ to Dr. Holt or Dr. Würdemann, or any few men especially interested in the subject. The formulæ are not complete, and that is a reason for bringing them before the section. In order to complete them we

must have observations made by a large number of the profession. These analyses of Dr. Holt have largely to do with functional ability. If we can get definite reports from actual cases, in which the earning ability before and after the accident has been ascertained, our estimate of the real impairment of economic ability will be better. Functional ability may contribute to various things, as the comfort and pleasure of the individual, etc., but in this connection it is with reference to productive work, and the actual facts can only be settled by the combined experience of the profession. Functional ability is the foundation of the whole subject and must be settled by our united statistics. Some day it will be settled in that way, and if the members of this section will consider the cases that come to their notice in the next year, or the next five years, with reference to this point, there will result a basis of observed facts which will make these formulæ of the greatest value.

Dr. E. E. Holt, Portland, Me., agreed with Dr. Jackson that the functional ability is the most important element in the problem, but he said further that, as he had shown in the discussion of the formula for the normal earning ability of the body, the functional ability of the body, however perfect, would be of no economic value without the technical and competing ability of the person to go with it and make it useful. It should be demonstrated that the economic value of man can be ascertained as readily as any of the values on which insurance, the first business of the world, is based. With these methods the economic value of a person at any age can be demonstrated to all interested parties, and then a standard has been established for a base on which to compute that person's economic loss when damaged from injury or disease. In a number of cases he has been consulted privately and has figured the problem out according to the methods here presented with so much satisfaction that the cases have been settled out of court. With standard methods of procedure to ascertain the economic value of a person at any age, according to his functional and his net earning ability, that person's present economic value can be readily determined; and, with the mathematical formula for the normal earning ability of the body, with the requisite data, that person's economic loss can be determined when he has been damaged, in a manner equitable to all concerned. Thus, in a given case, what is right and equitable can be ascertained; this is of very much more importance than collecting statistics of what is being done under present empirical methods.

Clinical Notes, New Instruments, Etc.

A NEW BABCOCK MILK TESTING BOTTLE.

ADAPTED FOR TESTING SMALL AMOUNTS OF MILK WITH THE AID OF THE ORDINARY URINE CENTRIFUGE.*

ROSS C. WHITMAN, A.B., M.D.
CHICAGO.

About a year ago, I demonstrated a method for the determination of fat in milk, adapted to human milk, and for general office purposes, before this society. Those who saw that demonstration may remember the difficulties experienced with the Babcock bottles then available. Indeed I doubt very much whether any one was stimulated to repeat the experiment. This fact has led me to devise a bottle which seeks to do away with the chief difficulties attendant on the use of those bottles. The regulation Babcock bottles may be used for office work, of course, but they involve the purchase of a special centrifuge large enough to hold them, and they call for an amount of milk (17.6 c.c.), which is sometimes difficult to obtain in the case of human milk. On the other hand, the bottles heretofore devised for office work are objectionable for one of two reasons. One form of bottle holds such a small amount of milk in proportion to the caliber of the neck, that the chance of error is great enough to reduce the test to a mere guess. The other form has a neck so small that it is extremely difficult to get fluids either into or out of it.

The bottles which I have devised (Fig. 1) have been compared repeatedly with the regulation large Babcock bottles, and have given identical results, so that I have no hesitation in stating that for clinical purposes they are perfectly reliable. They may be used to determine the fat content of human milk, fat being the most important constituent from the clinical standpoint, because it is the constituent which oftenest is at fault; or, in localities remote from a milk laboratory, for the same test in cow's milk.

MANUFACTURE AND USE OF THE BOTTLE.

Briefly the points to be observed in its manufacture and use are the following: The bottle is about 3.75 inches long, and of the shape to fit the ordinary aluminum centrifuge sheath. It is marked at three points indicating respectively 2.5, 5, and 10 c.c. These make it possible to get along without the corresponding volumetric pipettes. Into the neck of the bottle is ground a glass tube of such a length that when inserted in the bottle, bottle and tube measure not more than 5.5 inches in length, and the sheath must be long enough to allow the bottle to swing free in the jaws of the centrifuge arm. The tube above mentioned is calibrated to hold 0.25 c.c (i. e., 5 per cent. of 5 c.c.), which is divided into five major divisions, and each such major division is again divided into five parts. Bottles designed for testing cream have a tube calibrated to hold 0.75 c.c. (i.e., 15 per cent. of 5 c.c.), subdivided in the same way, so that each major division corresponds to 3 per cent. of fat when 5 c.c. of cream is used in making the test, and to 6 per cent. when 2.5 c.c. is used. A stout string tied about the neck of the bottle, and reaching beyond the sheath, will be found convenient in drawing the bottle out of the latter after use.

TECHNIC.

To test milk proceed as follows: Fill the bottle with milk to the mark 5, and then with sulphuric acid, sp. g., 1.82-1.83 (91 per cent.), to the mark 10. Mix carefully, being careful that the hot mixture does not spill on the hands or clothes. Place the bottle in the sheath and centrifugate for two minutes at a reasonably high speed. A power centrifuge, of course is convenient, but by no means necessary. Remove the bottle from the sheath and fill it to the base of the neck with hot water, insert the tube in the neck, and fill the latter to the top of the calibrated portion with hot water by means of a dropper with a fine point. Place the bottle in the sheath again, and recentrifugate for one or two minutes. On removing the bottle from the sheath to take the reading it will often be found that the column of fat has sunk so low in the neck, from cooling, that a reading can not be taken. If this is the case, set the bottle for a few seconds in a dish of hot water, watching it until the column of fat rises well into the tube, when the reading may be taken. In case the fat settles to a point below the lower end of the tube, a part of it may fail to enter the tube again when it is heated. One can easily protect himself, and if necessary correct any errors from

*. Read at the March meeting of the Northshore Branch of the Chicago Medical Society.

this source, by the following simple procedure: After taking the first reading, place the finger over the upper end of the tube so as to close it, and remove the tube from the bottle. Discard the contents of the tube, wipe out the latter, return it to the bottle, and again fill it to the upper end, as before, with hot water; now centrifugate again, and add any fat thus found to the fat obtained at the first reading.

For testing cream, the method is identical, except that the larger calibered tube is used. For creams containing above 15 per cent. butter fat, the bottle will not give a reading if 5 c.c. of cream is used. In this case, fill the bottle with cream to the mark 2.5, then with water to the mark 5, and finally to the mark 10 with acid, and proceed as before.

These bottles were made for me by Leitz, and may be obtained from him.

The following table, modified from Holland's "Medical Chemistry and Toxicology," will be found useful in judging the quality of a sample of milk:

Milk.	Sp. g.	Percentage of butter fat.	Proteids and Quality.
Normal average	1.031	3.5	
Healthy variations	1.029—1.039	4.5-6	Normal (rich milk)
" "	1.032—1.033	2.5-3	Normal (fair milk)
Unhealthy "	Below 1.028	Above 5.0	Normal or slightly below
" "	" 1.028	2.5-5	Low (poor)
" "	" 1.028	Below 2.5	Very low (very poor)
" "	Above 1.033	Above 5.0	Very high (very rich)
" "	" 1.033	2.5-5	High
" "	" 1.033	Below 2.5	Normal or nearly so.

A CASE OF CRETINISM WITH SPONTANEOUS IMPROVEMENT.

ELEANORA S. EVERHARD, M.D.

DAYTON, OHIO.

This case is reported because it is interesting and encouraging, in view of the slight tendency to spontaneous improvement in cretinism.

Patient.—A girl, aged 12.

Family History.—The father had chronic nephritis, in an advanced stage, when the child was born. On the maternal side the history is negative. There is no history of cretinism or mental defect. The patient is the youngest of four children. The sister has never been strong, but gives no history of organic lesions. One brother has asthma; a second brother is excessively nervous. Nine years elapsed between the birth of the second brother and the patient.

Previous History.—As an infant, the patient slept much and cried little. The first teeth were not markedly late in appearing, but were very irregular. The child walked at two and one-half years. The hair was stiff and straight. The skin easily roughened, with a tendency to eczema. The eyes were slightly oblique, so that friends called her a "little Jap." The abdomen was enlarged but not pendulous, the navel slightly protruding. The child easily became cold, even to blueness of skin. Bowels were either constipated or very loose. The appetite was fair. When a few months old the child had an abscess back of one ear. Later she had "ulcerated sore throat." Adenoid growths were removed at about the sixth year. No mental change followed. In the winter of 1903 she had pneumonia. The temperature was so low and the child so little ill that a physician was not called for several days. In 1904 she had measles.

At the sixth year the child was sent to kindergarten. In neither public nor private schools could she be taught. At the tenth year she could not even be depended on to go to school. She would linger on the way, not realizing that she was disobedient. Conversation was incoherent and irrelevant. She could not dress or care for herself. Menstruation began at about ten years and eight months, and from that time the periods have occurred at regular intervals, duration four days. There is no pain with the exception of an occasional headache. The child began to brighten intellectually and can now read in the second reader and wants to learn everything she sees done. Conversation is better and she is beginning to care for herself. The abdomen has receded.

Examination.—I first examined the patient in August, 1905; she was suffering from acute indigestion. Temperature was 99; pulse, 88; height, 4 ft. 7⅝ in.; weight, 85¾ lbs. While height and weight were normal, the patient presented the appearance of being short and broad. The hands, fingers, and feet, were broad; the abdomen was large; gait was somewhat awkward; the lower part of the face was heavy. The expression was one of curiosity, but of no intelligent interest. The skin was harsh and somewhat eczematous, though perspiring freely because of the midsummer heat. Back of the right ear and about the nostrils, the skin was red and moist. The hair was fairly soft and somewhat curly. The tonsils and pharynx were congested. The thyroid gland was very small.

The patient obeyed directions inaccurately, both because of lack of comprehension and because of inability to act. Conversation was irrelevant, but not incoherent. She was restless, constantly moving about. The urine was normal. The patient was able to come some distance to the office, alone, after the first few times, when she had learned the way. She takes cold easily.

Treatment.—Thyroid extract was prescribed, gr. ½ t. i. d., increasing every other day until grs. vi were taken. Later this amount was increased to grs. viii. At the end of seven weeks the child had grown a little over one inch and had gained two pounds in weight. The lower part of the face had become less heavy. The expression was one of interest rather than of curiosity. She obeyed directions more quickly and exactly and could remember messages. She talked more intelligently, sat quietly in the presence of others, and her teacher says that in two weeks there was a noticeable increase in her ability to memorize.

From the appearance of the child, as seen on the street, and the history, together with the conditions as found on examination, I draw the following conclusions:

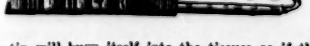
The patient presented a case of cretinism, coincident with adenoid growths. With the beginning of menstruation, there was a marked spontaneous improvement, the rapidity of which was greatly increased under treatment with thyroid extract.

AN IMPROVED CAUTERY TIP.

OTIS ORENDORFF, M.D.

CANON CITY, COLO.

In cauterizing the inferior turbinate the success of the operation depends on the cut being deep and clean in order that the resulting cicatrix will produce sufficient contraction of the interturgescent tissues without destruction of the functions. When the action of a saw or bread knife is thought of, a glance at the illustration will at once suggest its utility. By use of very slight pressure and a little to and from motion this tip will bury itself into the tissues as if they were butter. In addition to the saw principle the form of the knife seems to retain the heat, permitting absolute control and preventing the distressing tearing and hemorrhage that frequently accompany the cautery operation. I apply the knife cold and do not remove it until again cooled. Any jeweller can remodel the ordinary tip to this shape.



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EXPERIMENTAL CANCER AND IMMUNITY.

During recent years a large amount of investigative work of the highest order has been devoted to problems connected with the etiology of malignant tumors, but the positive results apparently have been so meager that the general impression seems to be to the effect that little or no actual progress has been made. This disappointment, to a large degree, depends on the fact that our expectations were set too high, we were looking for the immediate solution of the great and fundamental question, namely, what is the cause of cancer? Gradually it has become clear that this question probably is not susceptible of immediate solution with our present methods of investigation, and more attention is now being given by the cancer institutes, cancer committees and individual investigators to the collection of masses of facts of various nature in order better to secure a broad basis for conclusions and indications as to promising lines of work. Thus, Ehrlich and his co-workers, as well as others (in this country Clowes and Gaylord) have studied certain transplantable tumors of animals, with the special object of learning to what extent, if any, processes of immunity play a part in cancer, and eventually, perhaps, help to introduce better therapeutic measures for human cancer.

The researches of Hanau, Moran, Leo Loeb, and particularly of Jensen, have shown that rats, and especially mice, are best suited for transplantation of carcinoma. During the last few years Ehrlich's institute in Frankfort has obtained no less than 230 mice with primary cancer, which, considering the relative infrequency of such growths in this species, represents an enormous material. It developed that all these tumor mice were females, mostly such as were used for breeding, and that the primary tumor in all cases was situated in the mamma. Transplantation of eleven different primary tumors have been carried out, and Ehrlich[1] points out that as the tumor passes from mouse to mouse—not all mice are susceptible at first, only a small percentage; hence 20 or 30 animals have to be inoculated each time—a definite increase in proliferative energy, or virulence, takes place so that in time a much larger percentage of inoculations take, sometimes even 100 per cent., while the growth of the tumors increases greatly in rapidity. In this way was obtained a most promising virulent material for experiments in immunity and healing.

Incidentally it may be noted that some of these "forced" carcinomas showed a spindle-celled or polymorphous sarcomatous development in the connective tissue, and in two such cases the sarcomatous cells eventually crowded out the carcinomatous[2] completely. Indeed, Haaland succeeded in destroying the carcinoma cells in a mixed tumor by heating the tumor tissue to 45° C., a pure sarcoma developing on the inoculation of the material so heated.

The relatively slight infectiousness of spontaneous mouse carcinoma may be taken to indicate that the normal mouse possesses certain defensive mechanisms which prevent further proliferation of the tumor cells unless these have acquired a specially high degree of virulence. It would follow that in spontaneous tumor formation the beginning of the cell change, called carcinomatous, may be quite the same in different animals and yet the subsequent course be widely divergent owing to the varying degrees of individual resistance. It is particularly the mechanisms concerned in this later phase of cancer growth that attracted Ehrlich, and special experiments were devised to give some light, if possible, on the questions involved. In the first place he found that rats are naturally immune to mouse carcinoma, and this he attributes to the absence in the rat of some substance necessary for the continued growth of the cancer cells, and not directly to antibodies, because the inoculated cells at first grow freely and then die out completely. Rats once so inoculated do not permit any growth of further inoculations and appear to have acquired an active immunity from the resorption of the material of the first inoculation.

In the case of mice, however, Ehrlich assumes that the further growth of cells that have undergone what we must be content with calling a cancerous change depends on the relative ability and avidity of such cells as compared with normal cells to absorb nutritive substances. (Expressed in the terms of the lateral chain theory one would say the number and the avidity of the proper cell receptors.) Excessive growth of the tumor cells must mean a relatively higher avidity for the necessary substances than is possessed by the surrounding normal cells and in the last instance cancer growth, according to this interesting hypothesis, which we now can not follow any further, may depend on a relative diminution of avidity of the receptors of the general organism, i. e., on constitutional condition. As experimentally transplanted cancers grow in virulence, the cell receptors may be assumed to grow in avidity. Whether cancer can ever be attacked with success therapeutically by directly influencing the conditions here spoken of as receptor-avidity is a question for the future. At present we naturally are more interested in the possible results of immunization, even though the earlier expectations from this line of work have not been realized because of the contradictory results of vari-

1. Zeitschr. f. ärztl. Fortbildung, 1906, iii, No. 7. See THE JOURNAL, page 1715 of the last volume.

2. Apolant, Ehrlich and Haaland: Berl. kl. Wochenschr., 1906, No. 2.

ous investigators. Ehrlich chose the method of attenuated virus for his experiments, beginning with the inoculation of material from certain hemorrhagic mouse carcinomas which had proved to be least effective in causing growths on inoculation. Mice so inoculated prove perceptibly resistant to later inoculation of the most virulent material available. This immunity was apparent in from 7 to 14 days and persisted for weeks and months. Still more pronounced results were obtained in the case of animals in which for some reason or other primary inoculations with highly virulent material did not take. Sticker[3] reports that the spontaneous disappearance of readily transplantable sarcomatous tumors on the genitalia of dogs is succeeded by immunity to further inoculations. The immunity in Ehrlich's animals seemed equally effective against carcinoma and sarcoma and effective to some extent also against a transplantable mouse chondroma. Ehrlich ascribes this immunity, the demonstration of which seems to be the most important result of his work so far, to the formation of definite antibodies that act on various tumor cells, and he feels so encouraged with the results obtained that he proposes to work on further in this direction.

In conclusion, it may be said that a most promising field for the investigation of cancers in mice has been opened and we must hope that in time the results may become applicable to human cancer.

THE KIDNEYS IN TUBERCULOSIS.

The most interesting feature of the second annual report of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis in Philadelphia is the question of the condition of the kidneys in tuberculosis. The study was made in fifty-nine cases of advanced tuberculosis of the lungs which came to autopsy at the Phipps Institute and one private case in which the lung condition was practically cured. Altogether there were sixty autopsies carefully made. The present investigation is a continuation of a clinical study of the urine made three years ago by Dr. Flick, the director of the institute, and Dr. Joseph Walsh, in which tubercle bacilli were found in the urine in forty-four out of sixty cases of lung tuberculosis, the bacilli being carefully differentiated from other acid-fast bacilli by the use of alcohol in addition to Gabbet's solution. The previous investigation seemed to show that tubercle bacilli were almost constantly passing through the kidneys of consumptives whenever the affection was active. The idea of the present investigation was to determine how often the kidneys became affected from the constant presence of these pathologic agents in the circulation and excretory portions of the urinary tract.

The study was greatly facilitated and its thoroughness assured by the rule with regard to autopsies which is insisted on at the Phipps Institute. Patients who apply for treatment are told that in case of death an autopsy will be made in order that all possible information for the good of others may be secured. As a rule patients appreciate that such a condition is only a proper requital, a definite *quid pro quo*, for the medical attention, the nursing and the food that is provided for them. They appreciate, too, that it is not for the benefit of the physicians, but for the sake of other sufferers like themselves that the privilege of an autopsy is asked. The nearest relative of the patient signs a formal document giving the necessary permission, and autopsies are made in all interesting cases, which means practically all the patients who have been under treatment and observation for a sufficient time to enable autopsy records and clinical reports to be compared with each other for scientific purposes. This, we understand, is practically the only place in this country in which such a state of affairs obtains, and the results of the present studies of the kidneys in tuberculosis amply demonstrate its utility.

The kidneys in these sixty cases of tuberculosis were cut into very small pieces, about 150 in number, and after careful macroscopic study were then stained and studied with the microscope. From 12 to 100 microscopic sections were carefully examined. In the sixty cases, tubercles were found thirty-five times. These tubercles were all absolutely typical with caseation and giant cells. Besides these, three specimens showed accumulations of round cells resembling young tubercles, with miliary tubercles existing elsewhere in the body, so that the examiner was justified in considering them as probably tubercles. Counting these latter cases, then, tubercles were found in 63 per cent. of the cases. Heyn had previously found tubercles in the kidney twenty-one times in thirty-seven cases, about 57 per cent. It would seem, therefore, that it must be definitely accepted that considerably more than one-half of those suffering from pulmonary consumption eventually develop tuberculous lesions in the kidneys.

Besides these unmistakable tuberculous lesions, there were some other pathologic phenomena so common in the kidneys of these cases as to make it seem that the tuberculous process, whether through its toxins or by the direct influence of the bacilli, can produce other distinct changes in the kidney. The most common and the most interesting abnormalities were localized areas showing marked thickening of the interstitial tissue. These occurred thirty-eight times in sixty cases, just the same number as that of actual tubercles found. Sometimes these fibrous areas are seen on section as whitish or yellowish specks on the surface of the kidneys or almost immediately beneath the capsule. They resemble tubercles so much that they were more than once mounted and stained under this impression. Microscopically, they appeared to be healed or healing tubercles, though they did not show giant cells and only rarely a doubtful amount of caseation. In fifty out of sixty cases there was some thickening of the connective tissue of Bowman's capsule. In twenty-two out of sixty cases there

3. Arch. f. kl. Chir., 1906, lxxviii, p. 773.

was an accumulation of round cells immediately under the capsule. These represent young tubercles or localized fibrous areas.

It is not surprising to find, then, that the investigators consider that tubercle bacilli are excreted in all cases of active tuberculosis. Usually they have been rendered less virulent by their passage through the circulation, but sometimes they cause kidney lesions and occasionally, even when the lungs heal, the morbid condition of the kidneys proves sufficient in the progress of the ailment to bring about a fatal termination. The most common clinical symptom of tuberculous nephritis in tuberculosis are hyaline and granular casts and tubercle bacilli in the urine. Less frequent symptoms are pains or aches in the lumbar region, albumin in the urine, edema, and looseness of the bowels which may or may not alternate with constipation. Rapid pulse is common when nephritis is present. Patients are much more easily fatigued than otherwise and there is sometimes unaccountable dyspnea. The most encouraging feature of the investigation lies in the fact that in some cases there are apparent evidences of a tendency to recovery. Some of the lesions even seem to have been healed completely. While tuberculosis of the kidneys must be looked for in all cases, therefore, its presence does not necessarily mean a bad prognosis.

MENTAL SYMPTOMS ASSOCIATED WITH ALCOHOLIC NEURITIS.

However warm the discussion as to the dietetic or medicinal value of alcohol, there is no difference of opinion with regard to the pronounced and profound toxic effects to which this substance is capable of giving rise. These may be insidious and appear especially in the liver, kidneys and vascular system, or they may be acute and by preference involve the nervous system. In the latter event, the cerebral cortex and the peripheral nerves suffer most commonly, as manifested by delirium tremens and polyneuritis, respectively. The factors that determine the one or the other set of phenomena are as yet unknown, and it is not rare for alcoholic neuritis to be associated with varied abnormal mental phenomena.

As a result of a study of 17 cases of alcoholic intoxication, in conjunction with an analysis of the literature of the subject, Dr. Isador Coriat[1] arrives at the conclusion that the accompanying mental disturbances may assume various forms, appearing as either a central or a peripheral palsy of one or more eye muscles, in the sense of an inflammation of the peripheral fibers of the various ocular nerves or changes in one of the numerous cell groups of origin of the oculomotor nerves in the central gray matter. Thus, there may result, on the one hand, ptosis or isolated paralysis of one of the eye muscles, or, on the other hand, complete ophthalmoplegia. The associated mental disturbance is to be attributed to involvement of the higher central neurons, and it may take the form of either delirium with marked allopsychic disorientation or a fabricating psychosis. On the other hand, degenerative changes in the posterior columns of the spinal cord and of their nuclei in the medulla may be associated with peripheral neuritis and give rise to symptoms suggestive of tabes dorsalis. The signs of peripheral neuritis may be absent, however, the lesion being pre-eminently central in distribution and consisting in parenchymatous degeneration of various systems and their cells and manifested clinically only as a terminal disorder with peculiar and prominent, but almost pathognomonic motor symptoms. Sometimes there is a combination of peripheral and central symptoms. There are, however, no sharply limited types, as cases of ordinary peripheral neuritis are nearly always associated with central lesions. The psychosis described by Korsakow and characterized by impaired retention, defective memory for the recent past, disorientation and confabulation, may occur with or without symptoms of peripheral neuritis, and, besides, it may be due to other factors than alcohol. It may arise out of a depressive or a stuporous state, an acute hallucinosis or an ordinary delirium tremens. At other times there is a delirious state strongly resembling delirium tremens, but of acute onset, with or without disorientation, impaired retention, defective memory for recent events and confabulation. The confusion, however, is usually deeper than that of delirium tremens, especially if associated with paralysis of the ocular muscles. The physical decay is extremely rapid and may end with the motor disorders of a terminal central neuritis.

At yet other times there is acute delirium of the type described by Korsakow, with isolated neuritic symptoms and progressing rapidly to recovery. True delirium tremens may be gradually transformed into a fabulating psychosis. Recovery is not complete, but a slight degree of mental deterioration persists, or the delirium subsides rapidly and leaves a slowly improving neuritis. If neuritic symptoms appear during the delirium there are always superimposed suggestibility and marked fabrications. A further group of cases exhibits a protracted course, with marked depressive effect, suicidal tendencies, strong religious ideas, episodes of great fear and anxiety and marked hallucinosis. At the onset or height of the disease signs of peripheral neuritis are absent, but during the protracted course there develops emaciation with diarrhea and frequently rigidity and twitching—signs of central neuritis. There may be a pure acute hallucinosis, entirely free from allopsychic disorientation, in which neuritic pains may form the basis of various delusional interpretations, analogous to the paresthesias of the alcoholic paranoiac states without neuritic symptoms. On the other hand, peripheral neuritis may be absent during the hallucinosis to appear later in connection with typical fabrication and disorientation. Under both these conditions the outlook for recovery is favorable. There occur also depressive deliri-

1. American Journal of Insanity, April, 1906, p. 571.

ous states of rapid course, with marked physical symptoms of polyneuritis, or there may exist a dreamy, hallucinatory confusion, but without fabrications or amnesia.

There may yet be a fabricating delusion of acute type not resembling delirium tremens and exhibiting striking features of difference from the psychosis described by Korsakow. Finally, there may be observed a group of cases resembling at first an alcoholic deterioration with marked defect of memory, pursuing a slow course, but with almost complete recovery parallel with the improvement in the physical signs.

THE DYSTROPHIES OF TABES DORSALIS.

The nutrition of the tissues has been supposed to be dependent on the integrity and healthy action of special trophic nerves and centers, disorder of which has been invoked to explain certain forms of wasting and destruction. Such structures, however, have never been actually demonstrated and their existence must still be considered problematical. On the other hand, there are reasons for believing that the changes referred to are attributable to derangement of function or alteration of structure in the ordinary nerves of motion and sensation. Some phases of this subject are discussed by Sir William R. Gowers,[1] in his customary illuminating manner, in the course of a lecture dealing with the dystrophies of tabes dorsalis, namely, arthropathy and perforating ulcer. In his opinion, the tissues possess an inherent vitality which is influenced by the state of nutrition of the nerves related to them. In cases of tabes dorsalis, as is well known, the nutrition of the sensory nerves becomes altered, as indicated by hyperesthesia and anesthesia. In consequence, it may be reasoned, alterations in the processes of nutrition will take place that result in the characteristic dystrophies mentioned. The morbid disturbances may be incited or intensified by slight traumatisms that escape observation by reason of the impairment of sensibility. Besides, the absence of pain permits of the continuance of conditions, avoidance or removal of which would lead to restoration to normal. Thus, it was found in a series of cases of perforating ulcer of the foot that healing took place merely by placing the patient at rest, keeping the ulcer clean and dressing it. A comparable good result might be anticipated in connection with tabetic arthropathy if appropriate treatment were instituted at an early stage of the disorder, the painlessness of which often causes it to be overlooked and, therefore, neglected.

1. Brit. Med. Jour., June 2, 1906, p. 1267.

THE PATHOLOGIC CAT.

The cat, it seems, has no legal standing. This has been decided by a Massachusetts judge, who calls it "the worst untamed animal in Christendom." One might suspect, indeed, from the tone of his remarks that he is one of that class so interestingly described by Dr. Weir Mitchell and more or less familiar to every one—the cataphobiacs. The cat, however, does stand in discredit to a certain extent in a sanitary light. The article from which we quote the opinion referred to contains an indictment of the cat by Dr. Hodge (of Clark University?) which may possibly have influenced the judge's decision. Dr. Hodge says that many contagious diseases are common to man and the cat, and the animal is, therefore, a dangerous source of contagion to the human species. Even if the animal itself does not contract the disease, it is one of the most common and likely means of spreading infection. Diphtheria, whooping-cough, grip, eczema and ringworm are mentioned as diseases that have been definitely proved to have been thus conveyed. It is even claimed that a cat bite is more dangerous than that of a dog, because of infectious matter in the teeth. It is hard, however, to see why any indictment of the cat on sanitary grounds is not equally valid against the other human pet, the dog, which is just as capable of carrying many diseases and from its more general popularity is perhaps more likely to do so. The reason why the cat possibly is more dangerous than the dog is that it is more of an indoor animal. Hence the advisability of doing away with it under certain conditions, i. e., when it has been exposed to, or in contact with, contagious diseases. The same policy is best, also, under the same circumstances with the dog, and an affectionate dog has an unpleasant habit—that is, unpleasant as regards contagion—of pawing over people, licking hands, etc., far more than the cat. Every animal that is domesticated by man has probably its diseases that it can communicate to its master. We possibly owe tuberculosis to cattle, to say nothing of owing hydrophobia to the dog, glanders and tetanus to the horse, trichina (and who knows what else) to the pig, and probably every other tamed animal has its malign gift to the human species. It is just as well, however, that the cat has no more legal standing than it has. It has the merit of being more easily sacrificed for sanitary reasons than most of the others, and it certainly does us good service in decimating and keeping down the increase of certain other more insanitary animals which we have involuntarily domesticated. So, while condemning it, it is well to remember that civilization would be more insanitary in some respects were it not for the cat.

THE TREATMENT OF NEURALGIA AND SPASMODIC TIC WITH DEEP INJECTIONS OF ALCOHOL.

Certain crude analogies may be traced between neuralgia and spasmodic tic, both being, as it were, expressions of irritation in sensory and motor nerves, respectively. Both, besides, exhibit a tendency to chronicity and often a notable resistance to treatment. Deep injections of various substances have been recommended at different times in the treatment of obstinate neuralgia and good results have from time to time been reported. A modification of this method that is considered an improvement has been employed for a period of two years by Dr. F. Ostwalt[1] in 60 cases of trigeminal neuralgia, some of many years' standing. After the mouth has been properly disinfected, a bayonet-shaped, hollow

1. Lancet, June 9, 1906, p. 1605. See also THE JOURNAL, page 750 of the last volume.

needle is introduced into the cocainized mucous membrane of the upper fornix of the vestibule on the affected side behind the alveolus of the wisdom tooth and passed through the submucous tissues to the three divisions of the fifth nerve as they emerge from the skull at the foramen ovale, the foramen rotundum and the sphenoidal fissure, respectively, and from twenty to forty minims of 80 per cent. alcohol containing grain 1/18 to grain 1/9 of cocain or stovain are injected slowly and intermittently in each situation. A single injection may be sufficient to afford permanent relief, although not rarely several injections may be required at intervals of from five to seven days. The technic appears rather difficult and requires a not inconsiderable degree of practice and skill for its successful execution. The operation is rather painful, but the severity of the pain may be mitigated by a preliminary injection of cocain or stovain, while in the case of timorous persons general anesthesia may be induced by means of chloroform or ethyl chlorid. Relapses have been observed in about one-third of the cases, but generally the pain was much less severe than in the original attacks. The special advantages claimed for the treatment are its freedom from danger and the fact that the patient may continue at work without interruption during its application. The same plan of treatment has been employed by Ostwalt in ten cases of histrionic spasm, the injections in this instance being made into the facial nerve at its point of emergence from the stylomastoid foramen. A considerable number of cases of sciatica and of neuralgia in other situations have also been subjected to the treatment with success.

THE DEFACEMENT OF NATURE BY NOSTRUM ADVERTISEMENTS.

After much tribulation and delay the Pure Food Bill has at last gone through the ordeal of the legislators in a fairly acceptable form, and we can score a victory for the people. It would be asking too much perhaps at the present time, after having won this great reform, to demand that an esthetic touch should be added. We can be thankful enough for the useful without the ornamental. It would be a blessing, however, if "patent medicines" didn't stare us in the face from every point of vantage throughout the land. The more striking the scenery the more it is defaced with flaring advertisements of various sorts, too often some nostrum or food preparation intended for popular use. The more striking and picturesque a spot the better does it suit the psychology of advertising to disfigure it. Under the leadership of the American Civic Association and other organizations, public indignation has successfully forced the removal of objectionable signs in a number of cities. The government has taken this question under consideration in regard to the utilitarian destruction of the picturesque in the matter of the preservation of Niagara Falls, and it would be well if the state and local governments could also go a little way on the same good road in preventing the disfigurement of natural scenery by nostrum and other advertisements.

Medical News

ARKANSAS.

New College Organized.—The College of Physicians and Surgeons of Little Rock has been incorporated by Drs. Joseph P. Runyan, William P. Illing, David C. Walt, Arthur E. Sweatland, Charles C. Stephenson, Joseph P. Sheppard, Beauregard W. Flinn, Charles R. Shinault, S. Paul Vaughter, Edwin Meek, Thomas E. Hodges, George M. D. Cantrell, William B. Hughes, W. B. Smith, Emmet N. Davis, Clinton P. Meriwether, Daniel R. Hardeman and Rezin W. Lindsey, with a capital stock of $100,000, of which $55,000 has been subscribed, to conduct a school for the teaching of medicine and surgery in all their branches; of pharmacy and dentistry; a training school for nurses, and to maintain and operate a sanitarium and hospital. The officers chosen are as follows: Dr. Charles R. Shinault, president; Dr. George M. D. Cantrell, vice-president; Dr. William P. Illing, secretary and treasurer, and Drs. Charles R. Shinault, William P. Illing, David C. Walt, Arthur E. Sweatland and Edward Meek, directors. The board of directors, at a meeting, July 14, elected Dr. Joseph P. Runyan, dean, and Dr. William P. Illing, secretary of the college. The directors also elected the following members of the faculty: Dr. Arthur E. Sweatland, professor of anatomy; Dr. Thomas E. Hodges, associate professor of anatomy and lecturer on osteology; Dr. S. Paul Vaughter, associate professor and demonstrator of anatomy; Dr. Beauregard W. Flinn, professor of physiology; Dr. Emmet N. Davis, professor of chemistry; Dr. Rezin W. Lindsey, professor of clinical medicine; Dr. George M. D. Cantrell, professor of physicial diagnosis and diseases of the chest; Dr. David C. Walt, professor of the theory and practice of medicine; Dr. Clinton P. Meriwether, professor of materia medica and therapeutics; Dr. Edwin Meek, professor of obstetrics; Dr. Daniel R. Hardeman, professor of diseases of children; Dr. William P. Illing, professor of mental and nervous diseases; Dr. C. Travis Drennen, professor of syphilology and dermatology; Dr. Charles C. Stephenson, professor of diseases of the eye, ear, nose and throat; Dr. Joseph P. Sheppard, professor of genitourinary diseases; professor of pathology, to be supplied; Dr. Joseph P. Runyan, professor of surgery; Dr. Charles R. Shinault, professor of gynecology; W. B. Smith, professor of medical jurisprudence; and M. E. Dunaway, professor of English and literature. The adjunct professors and clinical assistants will be supplied later.

ILLINOIS.

Pneumonia versus Consumption.—For 35 weeks, beginning with the week ended Nov. 4, 1905, and ending with the week ended June 30, pneumonia was assigned as the cause of 3,261 deaths, out of a total of 19,116 from all causes, while consumption caused only 2,250 deaths. Pneumonia caused 17.1 per cent. and consumption 1.8 per cent. of the total deaths during this period.

Chicago's Mortality.—During the week ended July 14, 498 deaths were reported from all causes, 27 more than for the preceding week, and 51 more than for the corresponding week of 1905. Acute intestinal diseases led the death causes with 68, followed by consumption with 58, heart disease with 40, violence, including suicide, and Bright's disease, each with 36, nervous diseases with 26, and cancer with 18.

Personal.—Dr. J. W. Fulwiler, Bloomington, has returned from Europe.——Dr. James B. Hundley, South Danville, is threatened with typhoid fever.——Dr. G. C. Harmon, Rantoul, is reported to be in a critical condition in the Julia F. Burnham Hospital, Champaign.——Dr. Charles E. Davis, Peoria, was taken suddenly ill from overwork and heat exhaustion July 10, and removed to St. Francis Hospital.——Dr. Carl E. Black, Jacksonville, has started for Europe.——Prof. Elisha H. Gregory, head of the department of anatomy in the Northwestern University Medical School, Chicago, has resigned.

IOWA.

Typhoid.—Within a radius of three blocks in West Waterloo eleven cases of typhoid are reported. The disease is traceable to the use of water from shallow wells.

Fined for Illegal Practice.—"Dr." B. B. Miller, Waterloo, found guilty of practicing medicine, surgery and obstetrics without state license, was sentenced, on June 25, to pay a fine of $300. Miller claimed that he gave no medicine, healing by the laying-on of hands and manipulation, the so-called "Weltmerism."

Resolutions Regarding Dr. Maxwell.—At the annual meeting of the Des Moines Valley Medical Association, June 28, resolutions were unanimously adopted regarding the death of Dr. John R. Maxwell, Keokuk.

Hospital News.—The gift of two building lots, valued at $1,000 each, and a subscription of $500 practically insures the building of the Oskaloosa Hospital this year, as the amount of subscription now in sight exceeds the $10,000 required.

Fined for Violation of Ordinance.—Dr. Frank J. Murphy, Sioux City, pleaded guilty, July 2, to the charge of violation of the city ordinance for the restriction and prevention of contagious diseases, in that he failed to report two cases of scarlet fever. He was fined the minimum amount of $10.

Personal.—Dr. Andrew R. Resner, Manning, has gone to Europe.——Dr. Charles B. Rentz, Sanborn, coroner of O'Brien County, has resigned and Dr. H. Scott has been appointed his successor.——Dr. and Mrs. William H. Hoyt, Sioux City, sailed on the *Republic*, July 14, for Liverpool, on a tour around the world.——Dr. Diely N. Pattison, health officer of Oelwein, has resigned and Dr. Cooney has been elected his successor.——Dr. Henry M. Templeton, health officer of Ames, has resigned.

KANSAS.

Smallpox.—Hutchinson reports eight cases of smallpox in one district of the city.——The danger of a smallpox epidemic at Independence has apparently passed. The last patient has been released from quarantine.

Meffert's Petition Refused.—The Kansas Medical Board of Examination and Registration, on June 12, by unanimous vote, refused to restore state license of Dr. William M. Meffert, Emporia, which was revoked by the board four years ago.

Commencement.—The forty-fourth annual commencement exercises of the University of Kansas School of Medicine were held June 4 in Lawrence, when a class of fifty-seven was graduated. Dr. Edward W. Schauffler administered the Hippocratic oath.

Census of Consumptives.—The secretary of the Kansas State Board of Health has been ordered by the board to make a complete census of the cases of tuberculosis in the state. All of these are to be recorded as to the stage of the disease, method of infection, habits of the patient, treatment, etc.

Contagious Diseases.—During May, 97 cases of tuberculosis were reported in the state, with 55 deaths; 60 cases of typhoid fever, with 6 deaths; 34 cases of diphtheria, with 8 deaths; 65 cases of scarlet fever, with 2 deaths; 251 cases of smallpox, with 1 death, and 154 cases of measles, with 2 deaths.

Personal.—Dr. Walter C. Van Nuys, for 2 years assistant superintendent of the State Hospital for the Insane, Topeka, has been selected by the trustees of the Indiana Village of Epileptics as medical superintendent.——Dr. Reginald H. Meade, Great Bend, has started for Europe.——Dr. Ida C. Barnes, Topeka, has recovered from her recent accident.——Dr. Clyde D. Blake, Ellis, has been made division surgeon of the Union Pacific system.

Hospital News.—The new St. Mary's Hospital, Emporia, was dedicated with impressive ceremonies June 13. On June 15 the Sisters of St. Mary's Hospital gave a banquet in honor of the physicians of Emporia and Lyon County and the city officials.——A nervous-disease ward, 60x70 feet, is being erected in connection with Christ Hospital, Topeka, at a cost of about $8,500.——Plans have been prepared for a hospital building for Arkansas City, to cost $6,000.

KENTUCKY.

Gifts to Physicians.—Dr. T. H. Baker, the outgoing custodian of the postoffice of Louisville, who has entered the practice of medicine, was presented with a chest of silver from the postoffice employés.——The medical staff of Spears Memorial Hospital, Dayton, presented Dr. Garrison, retiring interne, with a handsome obstetric outfit.

Commencement.—The thirty-second annual commencement exercises of the Hospital College of Medicine, Medical Department of Central University of Kentucky, were held July 2. The announcement of the college was made by Dr. Lewis S. McMurtry, president, degrees were conferred on a graduating class of 94, and the doctorate address was delivered by Dr. Frederick W. Hinitt, president of the Central University of Kentucky.

Railway Surgeons Meet.—The first annual meeting of the Kentucky State Association of Railway Surgeons was held in Richmond May 29 and 30, under the presidency of Dr. Richard C. Falconer, Lexington. Dr. Clarence H. Vaught, Richmond, was elected president, Dr. Robert C. McChord, Lebanon, vice-president, and Dr. James B. Kinnaird, Lancaster, secretary and treasurer (re-elected). Frankfort was selected as the next meeting place.

Personal.—Dr. Thomas Hunt Stucky has resigned the chair of principles and practice of medicine and clinical medicine in the Hospital College of Medicine, Louisville, after twenty-four years' service in that institution. He has also resigned his connection with the Gray Street Infirmary. Dr. Stucky first entered the faculty as assistant demonstrator of anatomy, was then made professor of materia medica and therapeutics, and after six years was elected to the chair he has just resigned. He will probably be succeeded by Dr. Walter F. Boggess.——Dr. Wylie H. Forsythe, Lexington, who has been a medical missionary in Korea for two years, has returned home.

Hospital Corps for Home-Coming Week.—The hospital corps which had in charge the sick and injured during home-coming week, at Louisville, of which Dr. Henry E. Tuley was chairman, did excellent work and the perfection of its organization was notable. On each day a chairman and five physicians were on duty at the Armory building, assisted by two trained nurses. The hospital quarters were supplied with beds and supplies for emergencies. In addition hospital tents were located at Cherokee Park and at Central Park during the celebration at these places, and physicians and trained nurses were on duty. During the floral parade and on the occasion of the night pageant two ambulances were in line, with a full staff of physicians and emergency appliances.

Pictures in Newspapers.—At a recent meeting of the Jefferson County Medical Association, the following resolution was offered by Dr. Henry E. Tuley:

WHEREAS, There is to appear in a certain newspaper the pictures of forty or fifty physicians, who, on the payment of a specified price, are to be grouped at the head of an article on the history of the medical profession in Louisville; and

WHEREAS, This will exclude two-thirds of the members of the Jefferson County Medical Association, as well as some two hundred practitioners in the vicinage, thereby losing value as a fair representation of the present medical profession of Louisville, and causing discord in our midst; be it

Resolved, That the Jefferson County Medical Association discourages the appearance of the said pictures in the souvenir edition of the paper before mentioned.

Chas. W. Hibbitt, Dunning S. Wilson, Sidney J. Meyers, Adolph O. Pfingst, H. A. Davidson, Sam Myer, W. Hamilton Long, Irvin Abell, Henry E. Tuley, Bernard Asman, I. Lederman.

The question was referred to the judicial council for further consideration.

LOUISIANA.

Hospital for Lake Charles.—Plans have been accepted for the new hospital to be erected in St. Charles by the Sisters of the Incarnate Word, to cost $30,000.

Health Board Election.—The following have been elected as the health board of New Orleans: Dr. William T. O'Reilly, president; Dr. Oliver F. Ernst, Dr. William A. Gillaspie, Dr. William H. Robin and A. T. Wentworth.

House-Boat for Quarantine.—A house-boat has been prepared to be used at the mouth of the Mississippi to isolate crews from infected ports, and to enable fruit steamers to carry their perishable cargoes in charge of other crews through New Orleans, thereby avoiding delay.

Variola at Melville.—The report of smallpox at Melville has been much exaggerated. The medical inspector of the State Board of Health finds that the situation is well in hand. There are three foci of infection in the town, and thorough isolation and quarantine are being observed. The infection has been traced to a common source. All public gatherings have been prohibited.

Personal.—Dr. Joseph G. Stulb, New Orleans, sailed for Europe, May 20.——Dr. Theodore Engelbach, Grand Isle, has been appointed sanitary officer for the State Board of Health for that section of Jefferson Parish.——Dr. P. Jorda Kahrle has been appointed acting assistant surgeon U. S. P. H. and M.-H. Service, and assigned to duty at Puerto Cortez, British Honduras.——Dr. Norwood K. Vance, Shreveport, is seriously ill at New Orleans.

Precautions Against Yellow Fever.—As a precaution against possible yellow fever outbreak in New Orleans, the city and state boards of health announce that sixty city blocks are now under a searching system of inspection, and that the portions of New Orleans outside of this area are being closely watched by the co-operation of every physician in the city

and the health board. The sixty city blocks under especial supervision are those in which yellow fever originated or was present last season.

Regulations for Pilots.—At a special meeting of the State Board of Health, June 22, the following resolutions were adopted regarding boarding of vessels from infected ports by river pilots:

Be and it is hereby Resolved, By the Louisiana State Board of Health: That from and after the adoption of these resolutions it shall be unlawful for any river pilot, or any other person, the sea pilot and quarqantine physicians excepted, to board any vessel subject to quarantine inspection at the Mississippi River Quarantine Station, or any other station established by the Board of Health, at any point below the Pilot Town public school building on the Mississippi river.

Resolved, That it shall be unlawful for any river pilot, or any other person, to board any vessel subject to quarantine coming into the Mississippi River or any of its outlets below said schoolhouse, and in no event until such river pilot or person has a line thrown to him by the bar or sea pilot in charge of said vessel, under the direction of the master of such vessel. That no river pilot or other persons shall be allowed to get on any vessel by means of any hook, hooks, lines or ladders attached to or thrown on said vessels, and that any such river pilot or person who may violate these regulations shall be guilty of a misdemeanor, and subject to the penalties hereinafter fixed. Be it further

Resolved, That it shall be the duty of all bar or sea pilots in charge of vessels subject to quarantine to enforce these regulation, and that in case of their failure to do so they shall be guilty of a misdemeanor and subject to the fines and penalties hereinafter fixed. Be it further

Resolved, That hereafter it shall be unlawful for any river pilot to board any vessel within the limits above prescribed until he has been designated by the master of the vessel as the pilot for said vessel, and the line of said vessel is thrown to him by the sea pilot in charge. Be it further

Resolved, That the master of any vessel or any bar or sea pilot, or any river pilot, or other persons who may violate the above regulations or aid in their violation, or permit any violation of the above regulation, shall be guilty of a misdemeanor, and subject to a fine of not more than $100, or not less than $25, and imprisonment in the parish jail for thirty days for the first offense; and to a fine of not more than $250 and not less than $100 and sixty days' imprisonment in the parish jail for the second, or any subsequent violation; and that it shall be the duty of the resident physician of the Mississippi River Quarantine Station to enforce the above regulations by prosecution before the district court of Plaquemines Parish.

MARYLAND.

Baltimore.

Deaths by Violence.—During the first six months of 1906 there were 167 deaths by violence, 43 of which were due to suicide and 7 to homicide. There were 33 attempts at suicide and 770 minor accidents during the half year.

Maternity Hospital Report.—The University of Maryland Maternity Hospital reports that during the last year 685 cases of confinement were treated, 271 in the hospital and 414 in the out-patient department. The members of the senior class averaged twenty-five obstetric cases per member.

Faculty Changes.—Dr. William F. Lockwood has been made professor of principles and practice of medicine in the College of Physicians and Surgeons, vice Dr. Thomas S. Latimer, deceased.——Dr. John Ruhräh has been advanced from clinical professor of diseases of children to professor of therapeutics and clinical medicine, and Drs. Carey B. Gamble and Harvey G. Beck, associate professors, have been made professors of clinical medicine.

Johns Hopkins Appointments.—Dr. Arthur S. Loevenhart, now associate, has been appointed associate professor of pharmacology and physiological chemistry; Dr. William W. Ford, now associate, has been made associate professor of bacteriology and lecturer on hygiene; Max Broedel, now instructor, has been made associate professor of art in its relation to medicine; Dr. Arthur W. Meyer, now an assistant, has been made instructor in anatomy; Dr. George H. Whipple, now assistant, has been made instructor in pathology; and Dr. J. A. English Eyster, now assistant, has been made instructor in physiology.

MASSACHUSETTS.

Seniors Choose Profession.—Of 511 seniors in Harvard University this year, 24 have decided to study medicine.

Lawrence Will Analyze Waters.—The Lawrence Board of Health has voted to analyze all spring waters vended in the city, and to license the firms selling such waters.

Medical Student Dies.—Charles J. Conway, Millville, a first year student at Harvard Medical School, died at his home, June 27, from heart disease, aggravated by a dose of medicine taken to induce sleep.

Salary for Health Board.—The Chelsea board of aldermen has passed an ordinance providing for the payment of $300 a year to each member of the city board of health. The services of the members of the board have heretofore been rendered without charge.

Smallpox.—The steamship *Cymric*, which arrived from Liverpool July 15, had on board two persons affected with smallpox, and the 689 passengers and sailors were obliged to be vaccinated before the vessel was permitted to dock.——In New Bedford 75 persons are in quarantine in four houses, and 12 patients have been taken to the smallpox hospital at Clarks Point.

Convicted.—Dr. David H. Richmond, Brockton, on trial in the Plymouth County Court, charged with performing a criminal operation, was found guilty and sentenced, June 15, to imprisonment for not less than 6 nor more than 10 years.——Elizabeth E. Hartford, charged with circulating advertisements containing information regarding the performance of illegal operations, was sentenced on June 28 to serve an indefinite term in the woman's reformatory at Sherborn.

Personal.—Dr. Nathaniel P. Thayer has been appointed resident physician at the Long Island almshouse and hospital, vice Dr. Simon P. Cox, resigned.——Dr. Samuel H. Calderwood, Boston, has been made a member of the board of registration in medicine.——Dr. Edwin D. Hutchinson has been appointed town physician of Westfield.——Dr. Frederick W. Chapin, Springfield, was overcome by heat in the union station July 5.——Dr. Thomas B. Shea, health commissioner of Boston, has resigned, and will resume his position as chief medical inspector of the health department.

Commencement.—At the twenty-sixth annual commencement exercises of the College of Physicians and Surgeons, June 20, the announcement was made by the dean, Dr. Charles H. Cobb, that in order to come up to the standard recommended by the American Medical Association, the degree of doctor of medicine would be conferred only at the end of a five years' course, a year's work in the hospital, after leaving college, being required before receiving the degree. A class of 20 was graduated. In the absence of Hon. Joseph Bennett, the president, Dr. C. C. Farnham, Brockton, presented the diplomas to the graduating class.

Alumni Meet.—At the annual meeting of the Harvard Medical Alumni Association, June 26, the following officers were elected: President, Dr. Alfred Worcester, Waltham; vice-presidents, Drs. Frederick W. Borden, Ottawa, Ont., Richard C. Cabot, Boston, Edward F. Cushing, Cleveland, John M. T. Finney, Baltimore, Isadore N. Bloom, Louisville, Thomas F. Harrington, Lowell, Mass., Josiah N. Hall, Denver, Colo., Erasmus D. Leavitt, Butte City, Mont., George B. Shattuck, Boston, and Edmond Stevens, Cambridge, Mass.; secretary, Dr. David Cheever, Boston; and treasurer, Dr. William H. Prescott, Boston.——At the seventh annual meeting of the Tufts College Medical School Alumni Association a protest was made against the lack of consideration shown its wishes in making appointments to the faculty of the school. The following officers were elected: President, Dr. Thomas F. Greene, Boston; vice-presidents, Drs. Mary E. Gill, Boston, and Loretta F. O'Brien; secretary, Dr. William J. Sheehan, South Boston; assistant secretary, Dr. Edith M. Brooks, and treasurer, Dr. William B. Keeler, Boston.

MICHIGAN.

Physicians Upheld.—In the suit brought by Jan Bakker against Drs. D. Emmett Walsh and Ralph C. Apted, Grand Rapids, for administering chloroform to the plaintiff's son without his consent, has been decided by the Supreme Court in favor of the defendants.

Smallpox.—In Menominee 5 cases of smallpox are reported.——On July 7 the quarantine at Lowell, Mich., which was imposed on account of the epidemic of smallpox, of which 32 cases had been reported, was raised. The disease was of very mild form, and no fatalities occurred.

Commencements.—At the annual commencement of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, June 27, a class of 68 was graduated.——On June 18 the annual commencement exercises of the American Medical Missionary College were held at Battle Creek, when a class of 22 received diplomas. The address of the evening was delivered by Dr. Howard A. Kelly, Baltimore, and the diplomas were presented by Dr. James H. Kellogg.

Personal.—Dr. Caleb A. Fuller has been appointed instructor in bacteriology in the University of Wisconsin, Madison.——Dr. Cressy L. Wilbur has been appointed by the Secretary of the Department of Commerce and Labor chief statistician for the division of vital statistics in the census bureau.——Dr.

Joseph B. Griswold, Grand Rapids, has been elected commander of the Michigan department of the G. A. R.——Dr. Howard A. Kelly, Baltimore, delivered an address before the Kalamazoo Academy of Medicine, June 21.——Dr. and Mrs. Lotan C. Reed, Grand Rapids, sailed for Europe June 30.——Dr. Milton P. White has been re-elected a member of the school board of Dowagiac.

MINNESOTA.

Diphtheria.—Diphtheria in virulent form has broken out in Ely, and thus far one death has resulted.

Unlicensed Practitioner Fined.—"Dr." H. Dean, who has been practicing in Northome for six months, was arrested, charged with practicing without a license, pleaded guilty, and was fined $50 and costs.

Personal.—Dr. and Mrs. Charles R. Ball, St. Paul, have returned from Europe.——Dr. Henry M. Bracken, St. Paul, has been re-elected secretary of the State Board of Health, and Dr. F. F. Wesbrook, Minneapolis, has been reappointed director of the laboratories of the board.——The portrait of the late Dr. Edwin D. Steel, Mankato, was presented to the Blue Earth County Medical Society at its regular meeting, July 7.

Hospital News.—W. H. Kelley has donated $10,000 for an addition to the Owatonna City Hospital.——The St. Louis County board has adopted a resolution bonding the county for $100,000, the proceeds to be used in the building of a county insane hospital.——The cornerstone of the new Bethesda Hospital at Crookston was laid July 4.——Two pavilions for the care of tuberculous patients are to be erected this summer on the grounds of the St. Peter State Hospital.

Entrance Requirements Increased.—Beginning with the college year 1907-1908, the entrance requirement to the Medical Department of the University of Minnesota will be two full years of college work. For several years the requirement for entrance has been one year of college work, but in view of the fact that nearly 60 per cent. of the present student body have had two or more years' college preparation, the regents felt justified in thus raising the standard for entrance.

University News.—The new laboratory building for the use of the College of Medicine and Surgery, University of Minnesota, and the State Board of Health, will be ready for work at the beginning of the school year in September. The building is fireproof, and 60 by 213 feet. Plans are also being prepared for a building for operative surgery and experimental pharmacy, and for the new university hospital, made possible by the recent bequest of $150,000 by the late Dr. A. F. Elliott.

Dr. Ritchie Resigns.—Dr. Parks Ritchie resigned as dean of the Medical Department of the University of Minnesota, St. Paul, June 9, and the regents have elected Dr. F. F. Wesbrook as his successor. On June 18 the faculty of the College of Medicine and Surgery, University of Minnesota, gave a banquet in honor of Dr. Ritchie, when President Northrup presented him with a loving cup as an expression of the warm regard of his colleagues and in token of his long service in the interests of the university.

State Society Meeting.—The Minnesota State Medical Association held its thirty-eighth annual meeting in Minneapolis June 20 and 21, under the presidency of Dr. Charles Mayo, Rochester, with more than 300 members in attendance. The house of delegates, at its second session, elected the following officers for the ensuing year: President, Dr. Harry A. Tomlinson, St. Peter; vice-presidents, Drs. Edwin Y. Chilton, Howard Lake; Fletcher W. Penhall, Morton, and Pierre C. Pilon, New Paynesville; treasurer, Dr. Richard J. Hill, Minneapolis; secretary, Dr. Thomas McDavitt, St. Paul; councilor, first district, Dr. Eugene A. Hensell, Alexandria; councilor, fourth district, Dr. Frederick A. Knights, Minneapolis; and alternate to the House of Delegates of the American Medical Association, Dr. John J. Eklund, Duluth. Duluth was selected as the place of the next state meeting, and the printing of the proceedings of the association was given to the *Northwestern Lancet* for another year. The association was the guest of the Hennepin County Medical Association at a reception in the Masonic Temple, and a banquet was also given in honor of the association at Lake Minnetonka.

MISSOURI.

Commencement.—At the annual commencement exercises of the University of Missouri Medical Department, held at Columbia, June 6, a class of 8 was graduated.

Anti-Spitting Ordinance.—The health officer of Kansas City has instructed the sanitary inspectors to arrest persons spitting on the sidewalks in violation of the ordinance. The punishment for this offense under the new ordinance is a fine of from $5 to $25.

Resolutions Regarding Dr. Spaulding.—At a special meeting of the Jackson County Medical Society, Kansas City, resolutions were unanimously adopted setting forth the loss by the society, city, county and state in the untimely death of Dr. Charles L. Spaulding.

Personal.—Dr. Frank J. Lutz, professor of surgery in the medical department of the St. Louis University, has resigned.——Drs. Eugene J. Neville and Willard Bartlett, St. Louis, have been operated on for appendicitis and both are reported convalescent.——Dr. A. W. Kampschmidt has been appointed anesthetist in Parker Memorial Hospital, Columbia.——Dr. Valdemar Koch, assistant professor of physiologic chemistry in the University of Missouri, has resigned to accept a position as assistant professor in pathologic chemistry in the University of Chicago.——Dr. George Halley, Kansas City, recently suffered a cerebral hemorrhage while at Eureka Springs, Ark.——Dr. Daniel M. Shoemaker has qualified as assistant bacteriologist in the St. Louis Health Department.——Dr. Charles R. Woodson has been reappointed superintendent of State Hospital No. 2, St. Joseph.——Dr. B. C. Kern, former city physician at the City Hospital, St. Louis, has been appointed chief physician at the poorhouse to succeed Dr. John M. McKeage, who has been appointed assistant chief physician at the same institution.

NEBRASKA.

Ordered to Resign.—Dr. J. M. Alden, superintendent, and Dr. F. S. Nicholson, assistant superintendent, of the State Hospital for the Insane, Norfolk, were ordered by the governor on July 12 to vacate their offices, but refused to obey the order. The governor will appeal to the courts.

Commencement.—At the annual commencement exercises at the College of Medicine of the University of Nebraska, Omaha, a class of seven was graduated. Dr. James Carroll, of the Army Medical Museum, Washington, delivered the commencement address on "The Microscope in Medicine." Dr. Henry B. Ward, dean of the college, administered the hypocratic oath.

Personal.—Dr. James L. Greene, president of the Nebraska State Medical Society, formerly assistant physician in the Norfolk Hospital for the Insane, and since 1901 superintendent of the Nebraska Hospital for the Insane, Lincoln, who was recently appointed superintendent of the Illinois Eastern Hospital for the Insane, Hospital, was the guest of honor at a dinner given by the medical profession of the state, July 14, at the Lincoln Hotel. Dr. Melchert H. Garten acted as toastmaster and thirty representatives of the Nebraska profession responded to the toast, "Dr. Greene, His Work in Nebraska and His Success at Kankakee." Dr. Greene made a suitable response.——Dr. John T. Hay, assistant superintendent of the Nebraska Hospital for the Insane, Lincoln, has declined the appointment as superintendent of the asylum at Norfolk, to which he was recently appointed, pending the removal of Dr. Alden. On July 9 Dr. Hay was appointed superintendent of the Nebraska Hospital for the Insane, Lincoln, vice Dr. James L. Greene, resigned.

NEW YORK.

New York City.

Bequest.—Under the will of the late George J. Laughton, the Brooklyn Home for Consumptives is to receive $3,000.

Hebrew Sanitarium.—The new sanitarium for Hebrew children at Rockaway Park will be dedicated July 22 by Acting Mayor McGowan.

Detained at Quarantine.—On the arrival of the steamship *Mexicoo* from Havana July 10, 122 passengers were conveyed to Hoffman Island. It cannot be learned whether this is on account of a contagious disease, or in accordance with the new regulations which aim to prevent the landing in New York of any passenger who left a Cuban port less than five days previous to the time of the ship's arrival here.

Hospital Ordinance Vetoed.—The acting mayor has vetoed the proposed ordinance providing that patients brought to the hospitals in ambulances, public or private, must be admitted, and providing a penalty of $100 for violations. It was claimed that there was no legal authority for the passage of this ordinance and it could not influence many of the hospitals in New York City, as they were organized under state laws.

Personals.—Dr. and Mrs. Philip H. Embury and Dr. and Mrs. Valdemar Sillo sailed for Hamburg on the *Pennsylvania*, July 14.——Drs. Condict W. Cutler and John A. Jenkins sailed for Glasgow on the *Columbia*, July 14.——Dr. Gordon Hale sailed

for Antwerp on the *Zeeland*, July 14.—Dr. Robert J. Carlisle returned on the *Campania*, July 13.——Dr. Darlington, who was badly injured in a runaway at Otisville has been removed to the seashore and is making steady progress toward recovery.

Contagious Diseases.—There were reported to the sanitary bureau of the Department of Health for the week ended July 7, 370 cases of measles, with 19 deaths; 343 cases of tuberculosis, with 161 deaths; 220 cases of diphtheria, with 27 deaths; 103 cases of scarlet fever, with 6 deaths; 45 cases of typhoid fever, with 10 deaths; 36 cases of whooping cough, with 4 deaths; 27 cases of cerebrospinal meningitis, with 16 deaths; and 28 cases of varicella. A total of 1,172 cases and 243 deaths.

PENNSYLVANIA.

Typhoid in Phenixville.—An epidemic of typhoid fever has broken out in Phenixville, where there are about 30 cases. It is said that the high price of ice has led to the use of a number of wells in the town, and that to this is partly due the outbreak of the disease.

Asylum Inspected.—The annual inspection of the State Hospital for the Insane, Wernersville, was conducted on July 9 by the Council's Committee on Health and Charities. Dr. W. M. Late Coplin of the health department, Dr. Henry Sykes, chief resident physician at the Philadelphia Hospital, and Assistant Director Kerns accompanied the committee to study the conditions at the state hospital, in order to apply the knowledge thus gained to perfecting the system at the Philadelphia Hospital.

Philadelphia.

Unwholesome Meat Destroyed.—As the result of the crusade inaugurated by the Board of Health against unwholesome meats, about 9,000 pounds were condemned and destroyed by the direction of the health authorities. Besides this amount 11,000 pounds were also found unfit for food.

Hydrotherapy of Insane.—It is stated that a modern system of hydrotherapy for the treatment of the indigent insane will be installed in the Philadelphia Hospital, and as a result of the overcrowded condition of the present insane department of the hospital, plans are being made for the erection of a new hospital in the country outside the city. The present building, erected to accommodate 800 patients, now contains more than twice that number.

Medical Inspection.—The report of the division of medical inspection of the bureau of health for the month of June shows that the number of inspections made, excluding schools, aggregated 4,966; that 823 fumigations were ordered, and 27 cases were presented for special diagnosis. The inspectors made 5,088 visits to the schools and excluded 271 children from attendance; took 269 cultures, gave 163 injections of antitoxin, and made 340 vaccinations.

Health Report.—The total number of deaths reported for the week reached 539. This is a decrease of 112 from the number reported last week, and a decrease of 9 from the number reported in the corresponding period of last year. The principal causes of death were: Typhoid fever, 15; measles, 3; pertussis, 11; diphtheria, 4; consumption, 64; cancer, 16; apoplexy, 12; heart disease, 35; acute respiratory disease, 34; enteritis, 125; appendicitis, 3; Bright's disease, 35; suicide, 8; accidents, 31; and marasmus, 17. There were 128 cases of contagious disease reported, with 19 deaths, as compared with 129 cases and 15 deaths in the preceding week.

TENNESSEE.

Commencement.—Knoxville Medical College graduated a class of five recently. Rev. J. M. Ewing delivered the commencement address.

College Soon Ready.—The building of the College of Physicians and Surgeons, Memphis, which is being constructed opposite the city hospital on Madison street, will be ready for occupancy about September 1. The building is three stories in height, of brick, stone and terra cotta construction, and will cost about $60,000.

Sentenced for Malpractice.—In the case of Dr. Yost Safford Troyer, Memphis, charged with the murder of Mrs. F. A. Parks, Cleveland, Miss., by an illegal operation, the Supreme Court is reported to have affirmed the decision of the lower court sentencing the defendant to ten years in the penitentiary. ——Dr. John L. D. Walker, Chattanooga, charged with criminal malpractice, is reported to have been sentenced to confinement for eleven months and twenty-nine days in the county workhouse.

Elections.—At the annual session of the Middle Tennessee Medical Association at McMinnville, May 18, Dr. Lynn B. Graddy, Nashville, was elected president and Dr. William G. Frierson, Shelbyville, vice-president.——The West Tennessee Medical and Surgical Association held its annual meeting in Jackson May 10 and 11. The following officers were elected: Dr. George W. Penn, Humboldt, president; Drs. G. Weldon Oliver, Medina, and Jefferson D. Hopper, Andrew Chapel, vice-presidents; and Dr. Isaac A. McSwain, Paris, secretary (re-elected).

Personal.—Dr. Charles P. McNabb, dean of the faculty and president of the board of directors of Tennessee Medical College, Knoxville, has resigned, and Dr. Michael Campbell, professor of mental and nervous diseases in the institution and superintendent of the Eastern Hospital for the Insane, has been elected dean. Dr. McNabb will still hold the chair of theory and practice of medicine and clinical medicine.——Dr. Edgar H. Ford, Coal Creek, has been ill with appendicitis.——Dr. Newton F. Raines, Raines Station, has been elected president of the Shelby County Board of Health and jail physician, vice Dr. Frank S. Raymond.——Dr. William B. Rogers has resigned as president of the Memphis Board of Health.——Dr. Philander D. Sims, on June 1, completed the fiftieth year of his professional residence in Chattanooga.

TEXAS.

New Hospitals.—A sanitarium has recently been completed at Fort Worth by Dr. Frank D. Thompson at a cost of about $30,000.——Drs. Kossuth F. and Edward Purdy have established a sanatorium at Houston Heights.

Hospital News.—The Missouri, Kansas and Texas Railway has arranged that Waco shall be the head of the hospital system in Texas for the road. The Providence Sanatorium has been selected as the hospital, and Drs. James W. Hale and William O. Wilkes have been appointed surgeons in charge.

New Building for Insane Hospital Opened.—The second new building at the North Texas Hospital for the Insane, Terrell, was opened June 28. The building is intended for white male patients exclusively, and will accommodate 250. The third additional building will be ready in a few weeks, and will furnish accommodations for 500 additional patients.

Warning Against Yellow Fever.—Dr. George R. Tabor, state health officer, has issued a warning regarding the prevention of yellow fever, in which he states that yellow fever now prevails in almost all tropical countries; that, notwithstanding the prevalence of the disease, Texas was free of fever last year, and that it can be kept free by preventive sanitary measures. He summarizes in these words: "No mosquitoes, no yellow fever, no quarantine."

Personal.—Dr. John R. Frazier has been made city physician of Fort Worth.——Dr. Ashel B. Gardner has been elected city physician of Denison.——Dr. James E. Thompson, Galveston, has been elected vice-president of the Texas Academy of Science.——Dr. Joseph Gilbert, Austin, has been appointed resident physician and surgeon at the Texas Agricultural and Mechanical College, beginning September 1.——Dr. John H. Dean, Waco, has been appointed professor of neurology in the Baylor University College of Medicine, Dallas.

Medical Officers Examined.—A medical board, consisting of Col. George R. Tabor, Austin, surgeon general, and Majors Billie E. Ellis, Paris and Thomas V. Fryar, Corsicana, surgeons, Texas National Guard, convened at Austin July 2 and examined Captains Scurry L. Terrell, Dallas, and Robert F. Miller, Sherman, for promotions to majorities; Lieutenants Robert L. Dinwiddie, San Antonio, and Herbert F. Sterzing, Austin, for promotion to captaincies, and Dr. W. L. Robinson, Dawson, for admission to the medical department of the national guard.

College News.—The University of Medicine and Surgery of Fort Worth has been incorporated with a capital stock of $5,000.——The commencement exercises of Galveston Medical College, Medical Department of the University of Texas, were held May 31, when a class of thirty-three were graduated. The address to the graduating class was delivered by Dr. Alfred E. Thayer, professor of pathology, and President Houston conferred the degrees.——The third annual commencement of Southwestern University Medical College, Dallas, was held May 5, when diplomas were presented to the graduating class by Dr. John O. McReynolds. The address to the graduates was delivered by Rev. Hubert D. Knickerbocker.

VERMONT.

Personal.—Dr. Arthur O. Morton has been made health officer of St. Alban, vice Dr. Alphon A. Claflin, term expired.——

Dr. Halford R. Minor, Rutland, has been appointed health officer vice Dr. Edgar B. Moore.——Dr. Edwin Porter, Northfield, has returned from California.

Commencement.—At the annual commencement exercises of the University of Vermont Medical Department, Burlington, June 27, degrees were conferred on a class of forty-seven by President M. H. Buckham of the university.

Must Report Contagious Diseases.—Dr. Henry D. Holton, secretary of the State Board of Health, has issued an order that all physicians who fail to report cases of communicable disease to him shall be prosecuted. During 1905 only 21 cases of typhoid fever were reported to the health officers, while 77 positive diagnoses were made by the state laboratory.

VIRGINIA.

Smallpox.—Nine cases of smallpox have been discovered on Crab Run between Monterey and McDowell. Quarantine has been established and rigid measures are being employed to stamp out the disease.

New Hospital Building.—Plans have been made for the Norfolk Protestant Hospital, replacing the structure recently burned. The building is to be of brick and frame construction, and will cost about $50,000.

Personal.—Dr. Rawley W. Martin, Lynchburg, president of the State Board of Medical Examiners, was presented with a handsome silver loving cup by the board, June 15. Dr. Herbert M. Nash, Norfolk, made the presentation address.——Dr. Walter A. Warfield has been chosen successor to the late Dr. William R. Purvis as city physician of Alexandria.——The new board of health of Richmond organized July 3 and elected Dr. William T. Oppenheimer permanent president of the board. Drs. M. D. Hoge and Ramon D. Garcin are the other medical men on the board.

WEST VIRGINIA.

Hospital Annex Nearly Ready.—The annex of the Wheeling Hospital, which is nearly ready for occupancy, will increase the capacity of the hospital by 60.

Physicians versus Editors.—Physicians of Tucker, Randolph and Barber counties adopted resolutions and notified the newspapers that hereafter they should not publish the names of physicians in any way that might be regarded as contrary to professional ethics. Several of the editors to whom notices were sent are reported to have answered that they will do business as they see fit, and will publish the names of physicians whenever they think proper.

State Society Meeting.—The thirty-ninth annual meeting of the West Virginia State Medical Association was held at Webster Springs June 20, 21 and 22, under the presidency of Dr. Spencer S. Wade, Morgantown. The address of welcome to the society was delivered by Mayor H. C. Thurman. It was decided to establish a state medical journal, and the following committee was appointed to work out the details and plans: Dr. Samuel L. Jepson, chairman, and Drs. Louis D. Wilson and John L. Dickey, all of Wheeling. The following officers were elected: Dr. William W. Golden, Elkins, president; Dr. Vincent T. Churchman, Charleston, first vice-president; Dr. Henri P. Linsz, Wheeling, and Dr. Arthur O. Flowers, Clarksburg, councilors; Dr. Timothy L. Barber, Charleston, treasurer, and Dr. Thomas W. Moore, Huntington, secretary. The meeting was most harmonious, many very meritorious papers were presented, and the benefits of organization were clearly to be seen.

WISCONSIN.

Hospital Opened.—The new Mercy Hospital, Stevens Point, is now open to receive patients. It has accommodation for 18 patients.

Personal.—Dr. Luther A. Potter has been elected president of the Board of Education of Superior.——Dr. Frank J. Lambeck, Kewaskum, has gone to Europe.

Anti-Spitting Crusade in La Crosse.—The La Crosse County Medical Society is responsible for an ordinance prohibiting spitting on the sidewalks of the city, and providing a fine of $10 for violation of the ordinance.

Chiropractics Extradited.—E. J. Whipple and G. W. Johnson, chiropractics, charged with violating the state law by practicing medicine without a license, have been returned to La Crosse from Minnesota, on requisition.

College Transfer.—The real estate and equipment of the Wisconsin College of Physicians and Surgeons has been transferred to a board of trustees, to place the institution on a purely educational basis. The college officers selected were: President of faculty, Dr. A. Hamilton Levings; secretary, Dr. Lorenzo Boorse; and dean of the medical department, Dr. William H. Washburn, all of Milwaukee.

Acquitted.—John Thiil, an herb doctor of Somerset, who was charged with practicing as a physician without a license, has been found not guilty.——The case against Dr. Peter Tuntas, Milwaukee, charged with practicing medicine without a certificate, was dismissed June 8.——Dr. F. W. Epley, New Richmond, charged with malicious prosecution by Mrs. Julia King of Somerset, was acquitted June 29.——Dr. George T. Dawley, New London, charged with performing a criminal operation, was tried at Clintonville June 27 and the case dismissed.

Smallpox.—A Wauwatosa family, afflicted with smallpox, is reported to have gone to Pewaukee lake for the summer. The health officer of Milwaukee has notified the health officer of Wauwatosa that unless the family is ordered back and the quarantine order properly enforced he would declare a quarantine against the entire city of Wauwatosa. A deputy has been sent to bring back the infected family.——An Oconomowoc physician who sent a smallpox patient to Milwaukee in violation of the state law, explained to the local health department that he was ignorant of the law, and that he had told the man to go directly to the pest house and not to the city hall.

GENERAL.

Origin of the Cholera Epidemic in Manila.—Chief Quarantine Officer Heiser, in *Public Health Reports*, states that it is believed that the source of the cholera reinfection which occurred in the City of Manila has been definitely traced. It appears that at the Manila and Dagupan railway station a pail system was maintained, the contents of which were dumped, contrary to law, into a nearby canal. It is believed that one of the passengers arriving from a province in which cholera is present, used one of the pails at the railroad station, and that his dejecta contained cholera spirilla. The first cases that made their appearance occurred among persons who resided on the streets that ran along either side of the canal. A bacteriologic examination made of the samples of water taken at several places near the place where the fecal contents were emptied showed that cholera organisms were undoubtedly present. The persons who contracted cholera in all probability used this canal for washing purposes and thereby indirectly infected their food. It is furthermore believed, Dr. Heiser states, that the few cases which occurred in the immediate neighborhood, but not on the streets referred to, can be accounted for by assuming that some Chinese truck gardeners gathered some of the fecal matter in question and used it for sprinkling the vegetables. This latter assumption is strengthened by the fact that a substance which strongly resembled human fecal matter was found in the sprinkling cans of the Chinese gardeners. The nuisance was immediately abated, and after a heavy rain had washed the esteros clean no further cases of cholera occurred along the streets in question. The one or two isolated cases which have occurred since in the neighborhood are attributed to vegetable infection.

CANADA.

British Medical Association—Toronto Meeting.—The preliminary program for the seventy-fourth annual meeting of the British Medical Association, to be held at Toronto, August 21-25, under the presidency of Dr. R. A. Reeve, of Toronto, speaks as follows concerning what it calls some interesting features of the place of meeting:

> It is the largest city in the leading province of the leading colony of the leading empire of the world.
>
> It is the leading agricultural center in the empire, and in it is held annually the largest agriculture and arts fair.
>
> It is the greatest fresh water city in the empire, and is within easy access of Niagara Falls, Hamilton, Rochester, Kingston, the Thousand Islands, and elsewhere, by steamer. It is the most temperate city in the English speaking world. It has the finest choir in America. It is the educational center of Canada.

An analysis of the program is interesting. There are thirteen sections. The number of papers to be read before each section varies from ten to thirty. It is especially notable that a large number of physicians from the United States are to take part in the proceedings, both to read papers and to open discussions. In the section on anatomy thirty papers are listed. Twenty-three of these will be read by men residing in the United States. Of ten papers to be presented before the section on dermatology, all but three are credited to the United States. In the section on laryngology and otology sixteen papers are listed, nine of these coming from the United States. The same thing is true of all the other sections, with

the exception of the section on surgery, in which one of twelve papers is contributed by a surgeon from the States, and the section on state medicine, in which two out of twelve papers are credited to the United States. Of the whole number of papers to be read at this meeting, 133 are accredited to members of the British Medical Association and 114 to members of the profession of this country. The address in medicine will be delivered by Sir James Barr on "The Circulation Viewed from the Peripheral Standpoint." Sir Victor Horsley will deliver the address in surgery on "The Technic of Operations on the Central Nervous System." The address in obstetrics will be delivered by Dr. W. S. A. Griffith.

FOREIGN.

Retirement of Rindfleisch.—Professor von Rindfleisch retires from the chair of general pathology in the University of Würzburg with the current semester. His seventieth birthday is approaching, December 15.

Luethje Succeeds von Noorden.—Professor Luethje, of Erlangen, has accepted a call to the University of Frankfurt a. M., to succeed von Noorden, who goes to the University of Vienna, as already mentioned.

Narath to Take Czerny's Chair at Heidelberg.—It is announced that Professor A. Narath, of Utrecht, has accepted the call to Heidelberg to the chair of surgery left vacant by Czerny's retirement to devote himself to the new Institute for Cancer Research. Narath was born in Vienna and is now 41. He served as assistant to Billroth and to Gussenbauer until he went to Utrecht in 1896.

Russian Physicians in the Douma.—The *St. Petersburg. med. Wochft.* states that a physician just returned from a period of banishment to Orenburg was elected at once to the Russian Douma, making the twenty-ninth physician now elected to that body. Dr. Z. Schabad, of Wilna, who was banished to Archangel for three years, has been permitted to leave the country for his term of banishment. Seven other physicians who have been banished for a term of years are also mentioned by name.

Treatment of Cancer with Glycolytic and Pancreatic Ferments.—R. Odier, of Geneva, Switzerland, has been treating cancer on the basis of the destruction of the glycogen which seems to be indispensable to the progress of a malignant growth. A number of authors have pointed out that the more progressive the cancer the more abundant will glycogen be found in it, and especially in the younger proliferating portions of the growth. By destroying the glycogen he hoped to remove the conditions necessary for the further growth of the neoplasm. He thinks that even the most radical removal of a cancer can not insure against recurrence unless the diathesis is modified at the same time. He found that in cases of spontaneous tumors on animals the production of glycolytic and pancreatic ferments was exceptionally small, while the specific gravity of the blood was abnormally high. Injecting such animals with glycolytic and pancreatic ferments, the proportion of glycogen in the cancers dropped from 4 and 6 per thousand to a maximum of 0.03 per thousand, and their growth was arrested. Among the animals tested were two horses and two sheep with spontaneous sarcomas and fifteen dogs and four rats with spontaneous carcinomas. He has had five dogs, two rats and one horse under observation from nineteen months to four years. In every instance there was a local febrile reaction, and the growth of the cancers was then apparently arrested. They have remained stationary during the entire period since. The *Presse Médicale*, June 30, contains the report of Odier's research as presented to the local medical society.

German Association to Promote Material Interests.—The sixth annual assembly of the Leipziger Verband was held at Halle, June 21, with the president and founder of the association, Dr. Hartmann, of Leipsic, in the chair. The aims and workings of this organization have been frequently mentioned in THE JOURNAL, as, for instance, on page 1436 of volume xlii, 1904. The official name of the association is the Verband der Aerzte Deutschlands zur Wahrung ihrer wirtschaftlichen Interessen. It now has a membership of 18,723 physicians and reports a successful year. It assisted the physicians involved in conflict with the sickness insurance societies at Königsberg and Münster and in minor disputes in 127 smaller places. Defeat was sustained in three comparatively small places, but in the others matters were either settled satisfactorily or are still pending. The free bureau of information and employment conducted by the society reported that it had aided in satisfactory arrangements, providing physicians with substitutes or representatives, in 1,286 cases, assistants in 518 and medical practices in 354. It was announced at the meeting that the medical officers connected with the government railroads had been officially requested to resign from the Leipziger Verband, which aroused much protest. The association has taken up this year the complaints of the medical officers on German ships and is now striving to obtain better conditions for them. Another point agreed on was the necessity for postgraduate and undergraduate lectures and training in social medicine, the relations between the physician and his confrères as well as with the public in general, the state, etc. The Verband was instrumental in having a course of this kind delivered at Berlin this spring, as described in these columns on page 372 of the last volume. The association presented lately about $5.000 to aid the district physicians in Austria in their appeal for juster remuneration from the state, as mentioned in these columns last March.

VIENNA LETTER.

Rejected Government Department of Hygiene.

The present Austrian house of parliament, which numbers not more than eleven medical men among its 425 members, has declared its promedical sentiments by a bill brought in recently requesting the establishment of a special ministry for affairs dealing with hygiene and public sanitation. At present such matters are referred to the local magistrates and boards, and a uniform handling of these affairs was not possible on account of the lack of a central directing mind. The government did not accept the bill, rejecting it partly on account of the expense and partly on account of the interference with the rights of independent bodies. Although many influential members, among others the dean of the Vienna University, spoke in favor of the bill, and although the advantages of such an institution were made clear by figures, the government majority was 22, and the ministry is, at least for the present, out of the question.

A Tax on Prescriptions.

In order to obtain the funds necessary for a substantial strengthening of the institution for the orphans and widows of medical practitioners, a sort of tax has been proposed by the central medical board of Vienna. A prescription in Austria has to be signed by a qualified practitioner, holding the diploma of M.D., and to be dispensed only by certain apothecaries, who are responsible for the quality of the drugs sold by them. The tax proposed is to be levied in such a way that the apothecary affixes a stamp of the value of one-third of a cent to the prescription, charging it in the price of the medicine, the stamps to be obtained by the thousand from the central medical board of the different states in Austria. It is calculated that such a tax would bring in, in Vienna alone, about $12.000 a year, or about $150.000 a year throughout the eppire. The plan has met with violent opposition from certain classes of the population, chiefly certain druggists and quacks. The legislature has not yet taken the matter up, but undoubtedly this or a similar scheme will be found advisable, as the condition of the profession requires urgently the aid of the state, as well as of the public.

Lead Poisoning by Means of Soldered Water Pipes.

The board of health published recently the details of a limited epidemic of lead poisoning which occurred last year in Vienna. It appears that within a short period 720 persons presented the typical symptoms of lead poisoning. As they sought medical help at various places, it took a long time before it was found out that all these patients lived in the same block of houses in the center of a densely populated district. When the health office learned of the epidemic a search for the source of contamination was instituted and the explanation was found in a repaired water pipe. The block of the infected houses had been erected only recently, and when the branch water pipe supplying the new block was connected with the main pipe some careless workman employed soldering matter containing 78 per cent. of pure lead. The quantity of lead coming into the water was very small, about .003 grams (1/20 gr.) within twenty-four hours, the length of the lead-covered inner surface of the pipe was about 12 cm., but this was sufficient to produce, after the continuous use of this water for drinking purposes for many months, the symptoms of lead poisoning: colic, radial neuritis, paleness and the line on the gums. It is the first instance of contamination of the Vienna water, which is among the best, if not the very best in itself, of all the drinking waters of large towns, being derived from the glaciers and snow fields of the mountains. It is brought a distance of about ninety miles through aqueducts, and has always a standard of from 18 to 25 microbes in the cubic centimeter.

Insurance Fees and Lodge Practice

Societies Take Action.

MINNESOTA STATE MEDICAL ASSOCIATION.

At the annual meeting of this association, held June 19, 1906, the following resolutions were unanimously adopted:

Resolved by the House of Delegates of the Minnesota State Medical Association, in regular convention assembled, That we hereby pledge ourselves to exercise skill and care in all examinations for life insurance companies.

Resolved, That we hereby pledge ourselves to adhere strictly to the following schedule of fees for life insurance examinations: A minimum fee of $5.00 for each and every ordinary examination, including chemical analysis of the urine; a minimum fee of $10 for each and every examination where a microscopic examination of urine, sputum or other secretion is required; a minimum fee of $3 for each certificate of health for renewal of lapsed policies.

Resolved, That we do not believe any examination for life insurance is complete without the examination of the urine of the applicant, and we are unwilling to make any recommendation on an incomplete examination.

Resolved, That these resolutions shall go into effect and be morally binding on the members of the Minnesota State Medical Association on and after thirty days subsequent to their adoption.

Resolved, That the secretary shall within said time send a copy of these resolutions to every insurance company doing business within the State of Minnesota.

NASHVILLE ACADEMY OF MEDICINE AND DAVIDSON COUNTY (TENN.) MEDICAL SOCIETY.

Dr. Holland M. Tigert, Nashville, secretary of the Nashville Academy of Medicine and the Davidson County (Tenn.) Medical Society, writes that the following resolutions were adopted by that body at a meeting held July 3, 1906:

Resolved, That it is the sense of the Nashville Academy of Medicine and the Davidson County (Tenn.) Medical Society that examination for old-line life insurance companies should not be made for a less fee than five dollars ($5); and, further,

Resolved, That a copy of these resolutions be sent to the secretary of the Tennessee State Medical Association and to THE JOURNAL of the American Medical Association.

OTHER SOCIETIES.

Similar resolutions were passed by the New Jersey State Medical Society, the San Benito County (Cal.) Medical Society, and the Orange Mountain (N. J.) Medical Society.

Correspondence

The American Medical Directory.

NEW YORK, July 7, 1906.

To the Editor:—If any further argument were needed in favor of the publication of a register of physicians of the United States by the authority and under the supervision of the American Medical Association, such argument would be found in a contemplation of "Polk's Medical Register and Directory," a copy of the ninth revision of which was received a few days ago. I do not refer to its numerous errors of omission and commission; they may perhaps be unavoidable in a directory of national scope. I do not even refer to its numerous absurdities, such as, for instance, the inclusion of a journal for the laity and of a distinctly antimedical character, a journal that considers physicians and surgeons something worse than thieves and murderers, in the list of medical journals; or the putting of quack societies, trying to disrupt the medical profession of America, in the list of "medical associations." But I do refer to the numerous objectionable advertisements with which the book is filled and which must prove an eyesore to every ethical physician, who at present—for the lack of any other—is obliged to consult that directory. It is certainly unpleasant to have to be confronted on the top of every few pages with either antikamnia or the Keeley cure. It was hoped that the agitation which has been going on for the past two or three years, and of which the publishers of that directory can not fail to be cognizant, would induce them to purify this volume of at least the most objectionable advertisements; but apparently lay publishers can not be expected to get into sympathy with the attitude of the ethical part of the medical profession.

I for one would not have ordered a copy of the directory had I thought that the antikamnia advertisement would be repeated in it about 200 times. We will all welcome the appearance of the American Medical Directory, a truly authoritative register, free from the names of quack physicians, fake sanitariums, humbug "cures" and fraudulent medicinal preparations.

WILLIAM J. ROBINSON, M.D.

The Finances of the American Medical Association.

OIL CITY, PA., July 9, 1906.

To the Editor:—The *New York Medical Record*, June 30, contains an editorial on "The Finances of the A. M. A." After a statement relative to the Boston session being the most remarkable in the history of the Association and the general prosperous condition, due credit is given to the "secretary-editor, to whose genius for organization this increase is largely owed," etc. It then goes on with a jumbled statement of facts and fancies which bear unmistakable evidence of having for its purpose the creation of a feeling of dissatisfaction among the American Medical Association members. Having a personal acquaintance with not a few of the trustees of the Association, whose integrity is beyond reproach, I hope that none of our members will take the *Record's* article seriously. I have been a member of the American Medical Association long enough to appreciate and to understand its spirit, and THE JOURNAL which comes to my desk weekly is compensation far in excess of the paltry five-dollar annual fee.

To quote: "There may be no 'ring' or 'clique,' in the evil acceptation of the terms, but there is want of frankness on the part of those who control the Association which is disquieting and tends in these days of 'graft' to arouse grave suspicions."

Let the work of those who are in control of the American Medical Association answer whether or no there has been a "ring" or "clique" and whether "in these days of graft" there was not a whole lot of graft refused. If there is any despicable mode of warfare it is the throwing of a bomb into a peaceful camp with the hope of changing order and discipline into chaos. It seems to me the *Record* should turn its attention to cleaning its advertising pages rather than to the making of such insinuations.

JOHN C. O'DAY, M.D.

Atropin and Strychnin Combined a Specific for Seasickness.

SINCLAIR, ILL., July 16, 1906.

To the Editor:—In THE JOURNAL, June 23, 1906, is an interesting article with the above title by Brig.-Gen. Alfred C. Girard, M.D., late assistant surgeon-general, United States Army, San Francisco. The essence of the report is that a prescription containing atropin sulph. gr. 1/120 and strychnin sulph. gr. 1/60, combined in a solution for hypodermic administration, to be repeated, if necessary, is a specific for seasickness. Dr. Girard describes a number of cases to show the value of this prescription, but, as he says nothing as to the origin of the formula, the inference will naturally be that he is the originator of the valuable combination. But he is not the author of it. The formula was published in the *Medical World*, September, 1894, and is from the *New York Medical Journal*, Dec. 9, 16, 23, 30, 1893, and is credited to Dr. W. N. Skinner, an experienced ship surgeon. I have used the same drugs for some time, although I have gradually increased the amount of strychnin much above the original as given by Dr. Skinner. Still, I call it the Skinner prescription, for he it was who first gave the world the idea, and if we see fit to vary the proportions it does not detract from the credit belonging to Dr. W. N. Skinner.

WILLIAM WALTER CRANE, M.D.
Formerly Acting Assistant Surgeon, United States Army.

Malaria in High Altitudes.

TOPIA, DURANGO, MEXICO, July 2, 1906.

To the Editor:—I wish to go on record in THE JOURNAL as absolutely and unqualifiedly refuting the seemingly well established statement that malaria can not exist in high altitudes.

Topia is situated on an elevated plateau at the head of a guebrada, which descends westward to the Gulf of California. The altitude is 5,900 feet above sea level. The topography of the locality does not permit of water standing or becoming stagnant, and it is pretty truthfully said that there have not existed a dozen mosquitoes in the place in that many years. Notwithstanding these facts the malarial plasmodium exists in abundance, as has been absolutely proven by microscopic

examinations and corroborated by therapeutic tests made by Dr. S. McGibbon in dozens of cases and by therapeutic tests made by me in several cases of intermittent chills and fevers. Many of these tests have been made in cases of children who have never been outside of Topia, and others in adults who for months had not been outside of the place. Dr. McGibbon found the plasmodia in the blood of fleas, which were allowed to bite malarial subjects, and he advances the very plausible explanation that in this place fleas are the transmitters of the disease.

J. A. KING, M.D.

Reciprocity and Qualifications as Viewed by the Illinois Board.

DETROIT, July 12, 1906.

To the Editor:—In THE JOURNAL, July 7, I note the information, under State Boards of Registration, that the Illinois State Board of Health has withdrawn from membership in the American Confederation of Reciprocating, Examining and Licensing Medical Boards; I also note the so-called "Reciprocity Resolutions" passed June 20 by the Illinois board. This act of withdrawal from the confederation (together with the resolutions adopted) is not only distinctly peculiar and original, but will be of more than passing interest to members of state medical boards and to the profession generally.

Under date of Feb. 27, 1906, I, as secretary of the American Confederation, received a letter from Secretary Egan of the Illinois State Board of Health protesting against the prerequisite qualification of the confederation which provided for proof of membership in the county, state or national medical organization as evidence of good moral character. He also protested against the provision in Qualification No. 1, for a supplemental examination, in case the scope of the prior state board examination was defective, and the requirement of a year's practice subsequent to the date of the license on which endorsement was sought.

At the Columbus meeting of the confederation the prerequisite credential complained of was amended as follows, and made purely elective. The former prerequisite was not in any sense mandatory but advisory:

PREREQUISITE CREDENTIAL, AS AMENDED MAY, 1906.

As a prerequisite to reciprocal registration the applicant therefor shall file, in the offices of the boards of the state of which he is a licentiate and of the state where reciprocal registration is sought, such evidence of good moral and professional character as may be demanded by said boards, and such evidence, at the discretion of either board, may include proof of membership in a recognized medical society, and such membership may be considered in connection with the other evidences of character presented.

QUALIFICATION 1.

A certificate of registration showing that an examination has been made by the proper board of any state, on which an average grade of not less than 75 per cent. was awarded, the holder thereof having been at the time of said examination the legal possessor of a diploma from a medical college in good standing in the state where reciprocal registration is sought, may be accepted in lieu of examinations, as evidence of qualification. Provided, that, in case the scope of said examination was less than that prescribed by the state in which registration is sought, the applicant may be required to submit to a supplemental examination by the board thereof in such subjects as have not been covered.

QUALIFICATION 2.

A certificate of registration, or license issued by the proper board of any state, may be accepted as evidence of qualification for reciprocal registration in any other state. Provided, that the holder of such certificate had been engaged in the reputable practice of medicine in such state at least one year, and also provided that the holder thereof was, at the time of such registration, the legal possessor of a diploma issued by a medical college in good standing in the state in which reciprocal registration is sought, and that the date of such diploma was prior to the legal requirement of the examination test in such state.

The year's practice requirement was also eliminated from Qualification No. 1, but it was impossible to drop the supplemental examination provisions in Qualification No. 1, because of the fact that it provides for the recognition of, and the remedy for, inequality of state board requirements and may be properly called the "saving clause" of the qualification in question.

If the Illinois requirements are higher than those of other states it furnishes a protection; if lower, it gives her an advantage. Its elimination, therefore, would furnish a reason for the withdrawal of the Illinois board, but its retention should furnish a very strong incentive for the continuance of her membership.

Qualification No. 2, the method by which the older men in the profession, those practitioners, graduates of reputable medical colleges, who obtained licenses prior to the requirement in their state of a board examination, were provided for in reciprocity, was also a subject of protest by the secretary of the Illinois board, but as this qualification is not a compulsory one, although adopted by fifteen states out of the twenty-two states reciprocating, it could furnish no material reason for objection by the Illinois Board of Health, unless, perhaps, the board was looking for trouble and an excuse for withdrawal.

The standards, qualifications and regulations adopted by the American confederation are merely suggestive and intended as a guide and in the interests of uniformity, rather than mandatory, and boards holding membership, in considering the same, should have at least the qualification of broadness and should show some slight evidence of a judicial temperament, remembering that they represent a state rather than a base ball organization.

The following is a quotation from Secretary Egan's letter protesting against the qualification of membership in a county, state or national medical organization as proof of good moral character and which in the prerequisite complained of was purely an optional requirement:

A word in conclusion in regard to Qualification A (Prerequisite Credentials), which, I believe, at one time was qualification No. 3. There is nothing in the law regulating the practice of medicine in Illinois which, even by implication, would warrant the Illinois State Board of Health in refusing to admit to examination an applicant who failed to present with his application:

"(a) Satisfactory evidence that he had been, for at least one year, a member in good standing of the county, state or national organization of the school or system of practice to which he belongs."

"(b) A certificate of recommendation issued to him by vote, at a regular meeting of the society in which his membership originated, that he is worthy of registration anywhere." *(and such certificate of recommendation may be treated as part of such application and considered in connection with the other evidence presented.)*

[The words italicized were omitted by Dr. Egan.]

It follows, consequently, that the Illinois State Board of Health could not if it would impose these requirements on applicants for reciprocal registration.

These requirements are too absurd to be discussed even in the abstract. Their unconstitutionality is obvious. There is no court of competent jurisdiction in this broad land of ours which would not, on application, issue a permanent injunction restraining any board organized under the laws now in force from Maine to California from endeavoring to enforce them. I say this with a full realization of the fact that in many other states the act of reciprocity is entirely voluntary.

As evidence of the sincerity and consistency of Dr. Egan's protest as quoted above, the following reciprocity resolutions passed by the Illinois State Board of Health, June 20, 1906, are quoted:

2. *Resolved*, That the application of a physician for a state certificate based on a license issued, after examination, by a state board with which the Illinois State Board of Health sustains reciprocal relations, must be accompanied by letters of recommendation with regard to the moral, professional and ethical character of the applicant:

(*a*) From at least two members of the state board of examination issuing the original license, who shall certify that they have personally known the applicant for one year or more; or

(*b*) From a state, district, county or city medical society in the state from which the applicant comes; or

(*c*) From at least two of the duly elected officers of such state, district, county or city medical society, who shall certify that they have personally known the applicant for one year or more; or

(*d*) From at least two physicians approved by the state board of health, who are of national reputation, and who reside in the state from which the applicant comes, and who shall certify that they have personally known the applicant for one year or more; and

(*e*) From at least two reputable physicians, approved by the state board of health, of the county in which the applicant has resided.

Under requirement *b*, as above, compared with the prerequisite of the American confederation complained of, and also compared with the present prerequisite, as amended, I would respectfully ask Dr. Egan to demonstrate to the readers of THE JOURNAL wherein lies the material distinction. He pronounces the prerequisite as unconstitutional and states that a court of competent jurisdiction, if applied to, would issue a permanent injunction restraining its enforcement, and yet the Illinois board, having the advantage of Dr. Egan's legal opinion, withdraws from the confederation as a protest against the prerequisite and immediately afterward subscribes to a like qualification.

Under requirement *d*, I would ask Dr. Egan the method by which he measures a physician of "national reputation"—would he consult the newspapers who publish photographs of these eminent gentlemen, or would he insist that the gentlemen in question should have obtained their licenses through a board examination? As his board denies the rights of reciprocity to all physicians who have not obtained their licenses through a state board examination I take it that only the former class could be considered eligible to qualify as physicians of national reputation. I would then ask him how many physicians there are of national reputation who have passed state board examinations? As the law requiring such examinations has been in force in Illinois since 1899, and subsequent to this date in nearly all of the other states, therefore, the requirement of a national reputation must have necessarily been acquired during a period of not more than seven years of practice. In the case of a licentiate who has qualified for reciprocity otherwise than by the state examination method we would have the unqualified recommending the qualified.

The following reciprocity (?) resolution was also adopted by the Illinois board:

Resolved, That the Illinois State Board of Health will accept in lieu of the examination provided for in Section 2 of the "Act to Regulate the Practice of Medicine in the State of Illinois," approved April 24, 1899, satisfactory evidence of an examination at least equivalent to that exacted by the rules of the Illinois State Board of Health, successfully passed in the United States Army, the United States Navy or the United States Public Health and Marine-Hospital Service, by a surgeon in the service of the United States at the time of making application for a state certificate to practice medicine in the state of Illinois.

The Illinois State Medical Act, Section 7, provides as follows:

And this act shall not apply to surgeons of the United States Army, Navy or Marine-Hospital Service in the discharge of their official duties.

It is presumed, therefore, that it is within the authority only of the legislature, to grant such exemptions to the act which requires all applicants for license to possess certain qualifications which include a diploma from a reputable medical college and the successful passing of an examination before a state board. The Illinois State Board of Health, however, rises to the occasion, usurps the authority of the state, passes its own state law and grants greater privileges to a set of men than the act creating the board. This is, certainly, an anomaly in state board administration and should be adopted by other state boards, as it will relieve them of the necessity of going to the state legislature for amendments to their act.

It is not possible to shoulder this action of the Illinois board on a reciprocity clause from the fact that the Illinois board's act has no reciprocity in it, and also it is presumed that the Army, Navy and Marine-Hospital boards will not reciprocate the act of the Illinois board by making the licentiates of Illinois army, navy and marine-hospital surgeons.

Will Dr. Egan kindly furnish your readers with an opinion relative to these resolutions from the standpoint of reciprocity and its constitutionality.

In conclusion I would state that the Illinois board has always been held by members of the confederation as a more or less turbulent and wayward sister, subject to occasional disturbed periods, but nothing more serious has been suspected. Her recent symptoms, however, suggest certain degenerative processes, therefore, operative procedure seems indicated. The treatment advocated by the Illinois State Medical Society of the excision of the medical registration function from the public health department in Illinois, to my mind, is the only method promising a radical cure. B. D. HARISON.

Marriages

PERCY F. KEARNEY, M.D., to Miss Kissick, both of Bismarck, N. D., recently.

EDWARD Y. EBERLE, M.D., to Miss Lilly T. Everitt, both of Brooklyn, July 3.

EDWARD F. HILFERTY, M.D., to Miss Sara Keyser, both of Philadelphia, June 30.

JOSEPH K. PHIPPS, M.D., to Miss Ida V. Anderson, both of Grant City, Mo., June 27.

CHARLES W. YARRINGTON, M.D., to Miss Bessie Kratz, both of Calumet, Mich., June 30.

JOHN KIRTLAND TRESSEL, M.D., to Mrs. Mary Cena Spade, both of Allinace, Ohio, July 11.

PATRICK HAMILTON LLOYD, M.D., to Miss Alice Eloise Smith, both of Scotland, Md., July 10.

CHARLES JOSHUA KELLER, M.D., to Miss May Theodora Gernand, of Baltimore, July 14.

LAURENCE C. COOK, M.D., Webb City, Mo., to Miss Elizabeth Armstrong, Neosho, Mo., July 2.

JAMES B. BRIGHT, M.D., Russellville, I. T., to Miss Bessie Hughett, of Bentley, Ill., July 4.

ARTHUR W. ROGERS, M.D., Milwaukee, Wis., to Miss Theresa Limberg, of Evanston, Ill., July 3.

WILLIAM S. FROST, M.D., Lily, S. D., to Miss Maude M. Bartleson, of Minneapolis, June 26.

WALTER H. SIMMONS, M.D., Fordyce, Ark., to Miss Lydia A. Cook, of Hot Springs, Ark., July 3.

ANDREW J. STEVENS, M.D., Malden, Mass., to Miss Catherine C. Frost, of Melrose, Mass., recently.

HENRY W. CLAUSEN, M.D., St. Louis, to Miss Adolphina Margraf, at St. Charles, Mo., July 2.

JOHN F. MILLER, M.D., Andover, S. D., to Miss Gertrude L. Schuster, of Naperville, Ill., June 26.

GARDNER C. JOHNSON, M.D., Liverpool, Ohio, to Miss Agnes G. Niehoff, of Horricon, Wis., June 25.

CHARLES BENJAMIN FULLER, M.D., Waltham, Mass., to Miss Alice C. Lawrence, of Boston, recently.

HARRY F. WAGENSELLER, M.D., Derry Church, Pa., to Miss Bessie Ulrich, of Selinsgrove, June 20.

WILLIAM M. OATES, M.D., Bridgeport, Ohio, to Miss Isabelle E. McEachen, of Columbus, Ohio, June 27.

GEORGE EWART WILSON, M.D., Palmerston, Ontario, to Miss Bessie C. Pearson, of Granton, Ontario, July 4.

ERNEST P. ROOP, M.D., Camden-on-Gauley, W. Va., to Miss Rosa May Fox, of Spring Hill, W. Va., June 30.

RANSOM J. JONES, M.D., Crawford, Miss., to Miss Mildred Virginia Whitehead, of West Point, Miss., June 20.

CHARLES R. MCLEAN, M.D., Ewa, Hawaii, to Miss Anna Elizabeth Potts, of Wilkesbarre, Pa., at Honolulu, June 16.

Deaths

John William Bullard, M.D. Northwestern Medical College, St. Joseph, Mo., 1883; Missouri Medical College, St. Louis, 1887; Jefferson Medical College, Philadelphia, 1893; a member of the American Medical Association, formerly president of the Nebraska State Medical League, secretary of the Council of the Nebraska State Medical Society, a member of the American Academy of Ophthalmology and Oto-Laryngology, Western Surgical and Gynecological Association, and Pawnee County Medical Society, one of the leading practitioners of Nebraska, died at his home in Pawnee City, July 2, from carcinoma of the stomach, after an illness of several months.

Albert H. Holliday, M.D. Toronto University Medical faculty, 1889; president of the Grand Traverse Medical Society; a member of the American Medical Association and of the Michigan State Medical Society; a specialist in diseases of women and children, died at his home in Traverse City July 6, from cerebral hemorrhage, after an illness of a few hours, aged 47. At a special meeting of the Grand Traverse Medical Society July 6, resolutions were passed relative to the death of Dr. Holliday.

Frederick H. Leet, M.D. Medical Department of Western Reserve College, Cleveland, 1858, one of the oldest practitioners of Mercer County, Pa., assistant surgeon of the Fifty-seventh Pennsylvania Volunteer Infantry in the Civil War, died at his home in Greenville, Pa., June 23, from injuries sustained in a fall, in which he fractured his hip, a few days before, aged 84.

John F. Shackelford, M.D. Medical College of Georgia, Augusta, 1850; Medical College of the State of South Carolina, Charleston, 1860; in 1895 a member of the City Council of Columbus, Ga.; assistant surgeon in Pickett's division of the Army of Northern Virginia during the Civil War, died at his home, June 17, after an illness of a year, aged 70.

David B. Horton, M.D. University of Buffalo (N.Y.) Medical Department, 1874; some-time president of the Wayne County (N. Y.) Medical Society; died in his office in Wolcott, N. Y., July 9, from the effects of carbolic acid, taken with suicidal intent. He had recently suffered a cerebral hemorrhage, and had been despondent by reason of this.

R. S. Coleman, M.D. University of Tennessee, Medical Department, Nashville, 1899; health officer and medical referee of Calloway County, Ky., for many years and a member of the Kentucky State Medical Association and of the Caldwell-Lyon Medical Society, died at his home in Princeton, Ky., from paralysis, July 13, aged 75.

William Richard Keyes, M.D. University of Vermont, Medical Department; Burlington, 1898; milk inspector for the village of Glens Falls, N. Y., a member of the local county and state medical associations, consulting oculist to Parks Hospital, died at his home in Glens Falls, June 22, from tuberculosis, after a long illness, aged 42.

Willis Sims Horne, M.D. Atlanta (Ga.) Medical College, 1895; a member of the Brazos Valley Medical Society, contract surgeon in the U. S. Army, serving in the Philippines for two years, died at the home of his mother in Marlin, Tex., from septicemia, after an illness of six days, January 23, aged 31.

Samuel Rutherford Millen, M.D. Rush Medical College, Chicago, 1882, for nearly twenty-five years a practitioner of Clarinda, Iowa, a member of the Clarinda School Board, coroner and a member of the examining board for Page County, died suddenly in Bigelow, Mo., June 19, from heart disease, aged 52.

John Andrew Harvey, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1875; a veteran of the Civil War; sheriff of Schuyler County, Ill., in 1876; the oldest practicing physician of Rushville, Ill., died at his home in that place, July 7, from cerebral hemorrhage, after an illness of four days, aged 71.

Julia Wallace Russell, M.D. Woman's Medical College of the New York Infirmary, 1877, one of the first women physicians of New Hampshire and one of the prime movers and founders of the New Hampshire Memorial Hospital for Women and Children, Concord, died in that institution, July 1, aged 62.

John Montague Mahr, M.D. Eclectic Medical Institute, Cincinnati, 1867; hospital steward during the Civil War; representative from Labette County in the Kansas Legislature in 1870-1871, and postmaster of McCune for several years, died at his home in that city from malignant disease, June 26, aged 61.

George H. Spafford, M.D. Albany (N. Y.) Medical College, 1859, assistant surgeon of the Sixteenth Vermont Volunteer Infantry during the Civil War, a member of the Pension Examining Board and school director, died at his home in Cavendish, Vt., June 18, after an illness of six months.

Dumont Garey, M.D. University of Louisville, Medical Department, 1899; a member of the American Medical Association and secretary of the Floyd County (Ind.) Medical Society, died at his home in New Albany, Ind., July 7, from typhoid fever, after an illness of two weeks, aged 51.

Harry A. Eberle, M.D. McGill University Medical Department, Montreal, 1876, formerly of Webster City, Iowa, and for several years thereafter a surgeon in the army, died at his home in Greensboro, N. C., July 5, from spinal paralysis, after an illness of more than two years, aged 62.

J. Irvin Boone, M.D. University Medical College of Kansas City, 1903, secretary of the Chickasha (I. T.) Academy of Medicine, a member of the Central Oklahoma Medical Society, died at Chickasha, June 2, from hemorrhagic smallpox, June 10, after an illness of two weeks, aged 35.

Carl Henry Kehnroth, M.D. University of Erlangen, Germany, 1860, a lieutenant in the British Army during the Crimean War and for many years a teacher of languages in New York City, died in the French Hospital, New York City, July 2, from nephritis, aged 70.

John E. Conlan, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1878, of Munith, Mich., died at the City Hospital, Jackson, Mich., June 30, from complications following an operation for the removal of gallstones a week before, aged 57.

Arthur F. Baldinger, M.D. Homeopathic Hospital College, Cleveland, 1889, of Cleveland, Ohio, professor of obstetrics in the Cleveland Homeopathic Medical College, died at the Cleveland State Hospital, July 7, from cerebral hemorrhage, after an illness of two years.

William Boone Clarke, M.D. Medical College of the State of South Carolina, Charleston, a Confederate veteran, for more than forty years a practitioner of medicine, died at his home in Marks, Miss., June 3, from paralysis, after an illness of four months, aged 73.

Frank Ewing, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1870, a veteran of the Civil War, died suddenly in his dooryard at Ottawa, Ohio, June 30, from heart disease, from which he had suffered for twenty years, aged 63.

John W. Reilly, M.D. Bellevue Hospital Medical College, New York City, 1881, at one time a member of the Sangamon County (Ill.) Pension Board, died at his home in Springfield, June 27, from rheumatism of the heart, after a long illness, aged 47.

J. F. Jordan, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1894, a member of the American Medical Association and one of the prominent citizens and practitioners of South McAlester, I. T., died in a sanitarium at Dallas, Tex., July 2.

Palmer C. Cole, M.D. Harvard University Medical School, Boston, 1858; a surgeon in the army during the Civil War; first president of the New York Harvard Alumni Association, died suddenly at his home in New York City, July 4, aged 71.

Daniel Boone Clarke, M.D. Georgetown University, Medical Department, Washington, D. C., 1857, never a practitioner of medicine, died at his home in Washington, June 3, from intestinal obstruction after an illness of one week, aged 81.

Thomas McCracken, M.D. College of Physicians and Surgeons, Chicago, 1886, of Puyallup, Wash., was struck by an engine while going along the railway track near that place, thrown under the wheels and instantly killed, April 11.

Carl Dio Perry, M.D. Cooper Medical College, San Francisco, 1903; president of the Fresno County Medical Society, died at his home in Fresno, Cal., June 28, from tuberculosis of the kidneys and intestines, after a prolonged illness, aged 38.

Henry Booth Kendall, M.D. Ecole de Medecine et de Chirurgie, Montreal, Quebec, a member of the American Medical Association and of the Brown County (Wis.) Medical Society, died at his home in Menasha, Wis., July 2, aged 53.

Theodore De Mont Kellogg, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1874, health officer of San Bernardino County for many years, died suddenly at his home in Chino, Cal., July 4, from heart disease, aged 61.

Harry W. Garrett, M.D. University Medical College of Kansas City, 1899, a practitioner of Dodge City, Kan., died at the home of his father in Orwigsburg, Pa., July 8, from tuberculosis, after a prolonged illness, aged 32.

Charles C. Smith, M.D. University of Vermont, Medical Department, Burlington, 1865, a veteran of the Civil War, twice state representative and once state senator, died at his home in Gaysville, Vt., June 19, aged 76.

Jacob Mytinger Gemmill, M.D. Jefferson Medical College, Philadelphia, 1870, a member of the American Medical Association, died suddenly from dilatation of the heart at his home in Tyrone, Pa., July 3, aged 56.

John Peter Schmitz, M.D. California Medical College, San Francisco, 1881, for many years professor of physiology and nervous diseases in that institution, died at his home in San Francisco, July 4, aged 72.

Thomas F. McCreary, M.D. Bellevue Hospital Medical College, New York City, 1866, a retired physician, local preacher and prominent farmer of Dickson, Tenn., died at his home, June 27, from heart disease.

Charles C. Gordon, M.D. Hospital College of Medicine, Louisville, 1894; St. Louis College of Physicians and Surgeons, 1898, of Highland, Ill., died at the home of his father in Pocahontas, Ill., July 11.

James M. Gelwix, M.D. Jefferson Medical College, Philadelphia, 1866, died at his home in Upper Strasburg, Pa., July 11, from paralysis agitans, after an illness of thirteen years, aged 62.

Frank Richard, M.D. Miami Medical College, Cincinnati, 1873, of West Point, Iowa, died at Mercy Hospital, Burlington, June 29, from senile debility, after a protracted illness, aged 81.

George W. Birch, M.D. Medical Institution of Yale College, New Haven, Conn., 1858, a member of the Connecticut Medical Society, died at his home in Stamford, Conn., July 4, aged 75.

J. Fletcher Grimes, M.D. Cincinnati College of Medicine and Surgery, 1800, died from septicemia, due to an operation wound, July 9, at his home in Winton Place, Cincinnati, aged 40.

Ezra B. Bemiss, M.D. New York Homeopathic Medical College and Hospital, New York City, 1886, died suddenly from heart disease at his home in Newark, N. J., July 11, aged 43.

Joseph L. Howell, M.D. University of Buffalo (N. Y.) Medical Department, 1898, died at his home in Avoca, N. Y., July 9, from typhoid fever, after an illness of two weeks, aged 38.

William H. Holroyd, M.D. College of Physicians and Surgeons, Baltimore, 1884, and a practitioner of Athens, W. Va., since that time, died at his home in Athens July 4, aged 44.

Samuel George Dailey, M. D Medical College of Georgia, Augusta, 1853, died at his home in Kenedy, Tex., March 13, from Bright's disease, after an illness of ten days, aged 73.

David Jeffries Appleby, M.D. College of Physicians and Surgeons, Baltimore, 1872, died at his home in Tyrone, Pa., July 3, from uremia, after an illness of three weeks, aged 57.

William C. Doran, M.D. Detroit College of Medicine, 1903, died suddenly from the effects of poison, taken, it is supposed, accidentally, at Leland, Idaho, June 17, aged 27.

Joseph B. Hosken, M.D. University of Michigan, Department of Medicine and Surgery, 1875, died suddenly at his home in Grand Rapids, Mich., July 10, from acute indigestion.

William P. Andrew, M.D. Indiana Medical College, Laporte, 1843, a clergyman, lawyer and physician, died suddenly at his home in Laporte, Ind., May 18, aged 97.

Charles M. Ebert, M.D. Jefferson Medical College, Philadelphia, 1860, fell downstairs at his home in Mauch Chunk, Pa., and died instantly, aged 84.

Isaac Rivas, M.D Medical School, City of Mexico, 1857, for many years Mexican consul in San Francisco, died at his home in that city, July 9, aged 72.

Lubie McGee, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1901, of Zona, La., died in a sanitarium in New Orleans, July 4, aged 32.

William Wallace Skinner, M.D. Rush Medical College, Chicago, 1891, of Peoria, died at the home of his daughter in that city, June 17, aged 71.

Franklin W. Bigony, M.D. Jefferson Medical College, Philadelphia, Pa., 1852, died at his home in Montgomeryville, Pa., June 23, aged 103.

Silas Fulton Edgar, M.D. Pulte Medical College, Cincinnati, 1874, died from heart disease at his home in Zanesville, Ohio, July 10, aged 71.

Benjamin Otis Hester, M.D. University College of Medicine, Richmond, Va., 1896, died at his home in Haskell, Tex., June 23.

Barnett C. Walter, M.D. Jefferson Medical College, Philadelphia, 1859, died at his home in Dry Land, Pa., July 11, aged 74.

E. A. Jones, M.D. Missouri Medical College, St. Louis, 1874, died at his home in Cosby, Mo., June 26, from gastric disease.

Cyrus Doggett, M.D. Medical College of Virginia, Richmond, 1861, died at his home in Fincastle, Va., July 2, aged 65.

Josiah S. Richardson, M.D. (examination, Minnesota, 1883), died at his home in Perham, Minn., July 4.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

A SAN FRANCISCO PHYSICIAN'S EQUIPMENT.

X. D. writes: "In the recent San Francisco 'chill and fever spell' I received my share, for all I saved was my bow-legged dachshund, an obstetric forceps, and an umbrella, which I had forgotten at a patient's house a few days before the 'quake' came. Wasn't I lucky? I do remarkably well now. I made already fifty cents since. I leased a two story seven-room house (on credit) for 5 years, and my office outfit consists of a borrowed table and chair and an empty wooden box which I picked up on the street. In my parlor I have now two of them so my patients can sit down. I am now in the business center of the town. Am I not stylish?"

RECIPROCITY WITH TEXAS AND GEORGIA.

GEORGIA, July 10, 1906.

To the Editor:—1. What states reciprocate with Georgia? 2. With Texas?

ANSWER.—Texas reciprocates with Georgia. 2. Georgia, Indiana, Iowa, Nevada, New Jersey and Virginia reciprocate with Texas.

PRIZE FOR HOSPITAL PLANS AT ST. LOUIS FAIR.

A correspondent informs us, concerning the inquiry in THE JOURNAL last week, page 135, that at the World's Fair at St. Louis a gold medal was awarded to Dr. A. J. Ochsner and Mr. M. J. Sturm, Chicago, for hospital plans for a general hospital for a large city, one for a hospital for contagious diseases, one for an obstetric hospital and one for a hospital for small towns.

THE STUDY OF GYNECOLOGY AND OBSTETRICS IN GERMANY.

DR. J. L. S. asks: "What is the best foreign school of gynecology and obstetrics and what would be the expenses for two persons, man and wife, for a year or eighteen months, including all traveling and living expenses, with books, etc. Would you advise a course in German."

ANSWER: As our questioner asks about a course in German we assume that he has in mind when speaking of foreign schools those of Germany or Austria. A knowledge of German sufficient to understand the lectures and ordinary conversation is essential. It is true that in Vienna and Berlin there are a few assistants who give courses in English, but they are limited and ignorance of the languages is a handicap that should be removed as soon as possible. Any one with a limited knowledge of German who goes to Germany to study should at once secure a teacher and devote several hours a day to securing a working knowledge of the language.

The largest available opportunity for obstetric observation is in Vienna. The gynecologic cases in that city are also numerous and fairly accessible. With proper introductions it is probably the most satisfactory place for an American for work the whole year round. Vacation courses are given in other places, and especially in Berlin for four to six weeks, in September and October before the beginning of the winter term, that are especially adapted to practitioners and furnish a large amount of well laid out work. In Berlin also one may see much gynecologic work and some obstetric. Prof. v. Winckel, of Munich, and Professor Leopold, of Dresden, have for years admitted some Americans to a certain amount of work in their hospitals as voluntary assistants. The possibilities of securing such a place can be determined by writing to these men. Of course a good knowledge of German would be necessary. The clinic in Prague is large, and for many years it has been a favorite school for Americans. The Heidelberg clinic is smaller, but its director, Prof. v. Rosthorn, who visited America this year as the guest of the American Medical Association, always welcomes Americans and gives them every possible opportunity. It is frequently a good plan for an American making his first trip to Europe to spend some time in a smaller place and learn the German ways and then to go to the larger schools. The cost of living in Germany is considerably less than in America. One can live in a very good pension or boarding house for $25.00 a month. If one wishes to rent rooms and keep house the expense could be made much less than here. The pay of servants is about one-fourth or one-fifth of what it is in most American cities. Railroad traveling is also about one-half as expensive as on American roads. The tuition in the universities is small. On the other hand, if a foreigner wishes to take many special courses he must expect to pay liberally for them.

State Boards of Registration

COMING EXAMINATIONS.

PENNSYLVANIA State Board of Medical Examiners, Haddon Hall, Atlantic City, New Jersey, July 30. Secretary, Joseph H. Willetts, Westinghouse Building, Pittsburg.

NEVADA State Board of Medical Examiners, Carson City, August 6. Secretary, S. L. Lee, Carson City.

NEBRASKA State Board of Health, State House, Lincoln, August 8-9. Secretary, Geo. H. Brash, Beatrice.

MISSOURI State Board of Health, St. Louis, August 8-9. Secretary, J. A. B. Adcock, Warrensburg.

CALIFORNIA State Board of Medical Examiners, San Francisco, August 21. Secretary, Chas. L. Tisdale, San Francisco. (Applications must be in August 4.)

Increased Requirements in Illinois.—At its meeting held in Chicago, June 20, 1906, the State Board of Health voted to adopt the following as the minimum preliminary entrance requirement to the study of medicine. This standard was adopted by the National Confederation of State Medical Examining and Licensing Boards at Boston, June 4, 1906:

1. A high school diploma from a recognized high school, or its equivalent in the form of a certificate showing that the applicant has passed a satisfactory examination in all branches usually em-

braced in the curriculum of a four-year high school course, said certificate to be either issued or passed on by some designated state official, such as the superintendent of public instruction, and not by any one connected with any medical college.

2. Satisfactory documentary evidence of having completed at least one year of not less than nine months of work in chemistry, biology, physics and languages in either a recognized institution of learning chartered to confer liberal degrees or in a recognized medical college having a special additional year devoted exclusively to the above subjects, this requirement to apply to all students matriculating after Jan. 1, 1910.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending June 30, 1906:

Woodruff, Chas. E., surgeon, will proceed from Plattsburg Barracks, N. Y., to Mount Gretna, Pa. (via Headquarters Department of the East, Governor's Island, N. Y., to consult with the chief surgeon), for duty in connection with the encampment at that point.

Ashford, B. K., asst.-surgeon, will accompany E and H, 2d Battalion Engineer Troops, from Washington Barracks, D. C., to Mount Gretna, Pa., for duty during the encampment at that point.

Nelson, Kent, asst.-surgeon, will accompany F and G, 2d Battalion Engineer Troops, from Washington Barracks, D. C., to Chickamauga Park, Ga., for duty during the encampment at that point.

Ekwursel, Geo. M., asst.-surgeon, will proceed to Fort Slocum, N. Y., for temporary duty, and on its completion will return to temporary duty at Fort Hamilton, N. Y.

Rhoades, Thos. L., asst.-surgeon, left West Point, N. Y., on seven days' leave of absence.

Pyles, W. L., asst.-surgeon, left Jefferson Barracks, Mo., en route with recruits to Fort Wright, Wash.

Le Wald, Leon T., asst.-surgeon, left Fort Slocum, N. Y., en route with recruits to Fort Wright, Wash.

Grissinger, J. W., asst.-surgeon, will, on the expiration of leave of absence, proceed to Mount Gretna, Pa., for duty during the encampment at that point.

Baker, David, asst.-surgeon, on the abandonment of Fort Niobrara, Neb., ordered to Fort Bliss, Texas, for duty.

Hartsock, F. M., asst.-surgeon, relieved from duty at Fort Bliss, Texas, and ordered to New York City for duty as attending surgeon and examiner of recruits and as medical superintendent of the Army Transport Service in that city.

Wilson, Wm. H., asst.-surgeon, relieved from duty in New York City, N. Y., as attending surgeon and examiner of recruits, and as medical superintendent of the Army Transport Service, and ordered to Fort Hamilton, N. Y., for duty.

Cox, Walter, asst.-surgeon, granted leave of absence for two months.

Ekwursel, Geo. M., asst.-surgeon, assignment to temporary duty at Fort Slocum, N. Y., is revoked.

Wales, Philip G., surgeon, granted four months' leave of absence to take effect on arrival in the United States.

Lyster, Theo. C., surgeon, detailed as a member of examining board to meet at Ancon, Canal Zone, Isthmus of Panama, for the examination of medical officers to determine their fitness for promotion or advancement.

Crabtree, Geo. H., asst.-surgeon, will report in person, August 1, 1906, to Col. William C. Gorgas, assistant surgeon general, president, examining board, Ancon, Canal Zone, Isthmus of Panama, for examination to determine his fitness for advancement.

Smith, H. M., first lieutenant, asst.-surgeon, Aug. 27, 1906; Bartlett, C. J., first lieutenant, asst.-surgeon, Aug. 27, 1906; Eastman, W. R., first lieutenant, asst.-surg., Sept. 20, 1906; and Hall, Jas. F., first lieutenant, asst.-surgeon, Sept. 20, 1906, will report in person on the dates specified, to Lieut.-Col. Geo. H. Torney, deputy surgeon general, president, examining board at Army General Hospital, Presidio of San Francisco, for examination to determine their fitness for advancement.

Borden, Wm. C., surgeon, left Army General Hospital, Washington Barracks, D. C., on ten days' leave of absence.

Miller, R. B., first lieutenant; Ragan, Chas. A., first lieutenant; Metcalfe, R. F., first lieutenant; Rich, Edwin W., first lieutenant; Boyer, Perry L., first lieutenant, and Phalen, James M., first lieutenant, will report in person on Sept. 20, 1906, to Major Wm. H. Arthur, surgeon, president, examining board at Army Medical Museum Building, Washington, D. C., for examination to determine their fitness for advancement.

Raymond, Thos. U., surgeon; Purviance, Wm. E., surgeon, and Bratton, Thos. S., asst.-surgeon, appointed members of a board of officers to meet at Manila, P. I., for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion or advancement.

Jean, Geo. W., asst.-surgeon, ordered to report in person to Major Thomas U. Raymond, surgeon, president, examining board, Manila, P. I., on Sept. 3, 1906, to determine his fitness for advancement.

Dutcher, B. H., asst.-surgeon, relieved from further temporary duty with Co. A, Hospital Corps, General Hospital, Washington Barracks, D. C., and will proceed to San Francisco, and take the first available transport sailing for the Philippine Islands, and on arrival at Manila, report in person to the commanding general, Philippines Division, for assignment to duty.

Kuhn, Charles F., contract surgeon, returned from San Francisco, to his proper station, Fort Lawton, Wash.

Pomeroy, William H., contract surgeon, granted leave of absence for one month.

Rietz, Hugo C., dental surgeon, left Fort Wayne, Mich., for his proper station, Fort Sheridan, Ill.

Wolven, F. Homer, dental surgeon, ordered from Fort Warren, Mass., to Fort H. G. Wright, N. Y., for duty.

Bailey, Edward, contract surgeon, left Fort Wright, Wash., on leave of absence for four months.

Johnstone, Ernest K., contract surgeon, ordered from Chicago to San Francisco, for duty in the Department of California.

Sanford, Joseph L., contract surgeon, granted leave of absence for one month in the United States.

Cutliffe, William O., contract surgeon, granted leave of absence for three months in the United States.

Shellenberger, James E., contract surgeon, ordered, on the abandonment of Fort Ringgold, Texas, to Fort Brown, Texas, for duty.

Pinkston, Omar W., contract surgeon, ordered from Kansas City, Mo., to the Military Prison, Fort Leavenworth, Kansas, for temporary duty.

Newton, Ralph W., contract surgeon, ordered from San Francisco, to Barre, Vt., for annulment of contract.

Slater, Ernest F., contract surgeon, left Fort Hancock, N. J., and arrived at Fort Adams, R. I., for temporary duty.

Adair, George F., contract surgeon, left Fort Wadsworth, N. Y., and arrived at Fort Slocum, N. Y., for temporary duty.

Hutson, T. Ogier, contract surgeon, arrived at Fort McPherson, Ga., for duty.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending July 14, 1906:

Edger, B. J., Jr., asst.-surgeon, reports arrival at Fort Sam Houston, Texas, on detached duty, from Fort Brown, Texas.

Wakeman, Wm. J., surgeon, left Fort Thomas, Ky., with troops en route to Camp of Instruction, Fort Benjamin Harrison, Ind.

Marrow, Chas. E., asst.-surgeon, left Fort Monroe, Va., en route to Fort Myer, Va., for duty with Squadron, 13th Cavalry, Camp of Instruction, Mount Gretna, Pa.

Jones, Percy L., asst.-surgeon, left Fort Preble, Maine, en route to Fort Ethan Allen, Vt., for duty with artillery from that post at Mount Gretna, Pa.

Webber, Henry A., asst.-surgeon, left Fort Banks, Mass., en route to Plattsburg Barracks, N. Y., for duty with the Fifth Infantry, at Mount Gretna, Pa.

Mason, Charles F., surgeon, left Surgeon General's Office, Washington, D. C., on thirty days' leave of absence.

Gandy, Chas. M., surgeon, in addition to his present duties is detailed as professor of military hygiene at the U. S. Military Academy, West Point.

Carroll, James, asst.-surgeon, detailed to represent the Medical Department of the Army at meeting of the British Medical Association at Toronto, Canada, August 21 to 25, 1906.

Scott, Geo. H., asst.-surgeon, leave of absence extended one month.

Smart, Robert, asst.-surgeon, left Fort Myer, Va., en route to Chickamauga Park, Ga., for duty.

Dutcher, B. H., and Woodbury, F. T., asst.-surgeons, left San Francisco, on the *Sheridan* en route to Manila, P. I.

Fuller, Leigh A., asst.-surgeon, granted 14 days' leave of absence, to take effect on his being relieved from duty at Fort Clark, Texas.

McCaw, W. D., surgeon, left Surgeon General's Office on leave of absence to July 15, 1906.

Whitcomb, C. E., asst.-surgeon, left Fort McKinley, Maine, en route to Fort Ethan Allen, Vt., for duty with troops to and at Mount Gretna, Pa.

Whitmore, E. R., asst.-surgeon, left Fort Jay, N. Y., with troops for duty at Mount Gretna, Pa., arriving at Mount Gretna, same date.

Kneedler, Wm. L., surgeon, retired from active service on account of disability incident thereto.

Cox, Walter, asst.-surgeon left Fort Reno, O. T., en route to Fort Riley, Kansas, with second Battalion, 30th Infantry.

Foster, Douglas E., dental surgeon, ordered from Oklahoma City, Oklahoma, to the Philippines Division for duty.

Myers, William H., contract surgeon, ordered from Lynn Grove, Kentucky, to Washington Barracks, D. C., for duty.

Heming, Oswald F., contract surgeon, ordered from Chicago, to Fort Sheridan, Illinois, for duty.

Tuttle, George B., contract surgeon, relieved from temporary duty in the Department of California, and ordered to Fort Columbia, Washington, for duty.

Wing, Franklin F., dental surgeon, left Fort Meade, S. Dak., and arrived at Fort Riley, Kansas, for duty.

Hogan, David D., contract surgeon, arrived at Fort Hamilton, N. Y., for duty.

Koyle, Fred T., contract surgeon, returned to Fort McDowell, Cal., from temporary duty at Fort Mason, Cal.

Brown, Wilmont E., contract surgeon, granted leave of absence for three months.

Newton, Ralph W., contract surgeon, granted leave of absence for two months.

Pomeroy, William H., contract surgeon, left Springfield Armory, Mass., on leave of absence for one month.

Lemmon, Robert, contract surgeon, left Fort Warren, Mass., and arrived at Fort McKinley, Maine, for duty.

Wolven, F. Homer, dental surgeon, left Fort Mansfield, R. I., and arrived at Fort Trumbull, Conn., for duty.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending July 14, 1906:

Iden, J. H., P. A. surgeon, to duty with Marines at Camp Elliott, Panama.

Smith, W. R., asst.-surgeon, detached from U. S. R. S. *Hancock* and to examination for promotion, July 16, 1906, and then to wait orders.

Pease, T. N., asst.-surgeon, to examination for promotion, July 16, 1906, and thence to U. S. R. S. *Hancock*.

Dorsey, B. H., asst.-surgeon, detached from U. S. R. S. *Lancaster* and to examination for promotion, July 16, 1906, then to wait orders.

Wise, A. H., surgeon, acting asst.-surgeon, detached Navy Yard, Washington, D. C., home and granted leave until expiration of appointment, July 14, 1906.

Guest, M. S., surgeon, detached from Naval Training Station, Newport, R. I., and to the U. S. S. *Tennessee*.

Brownell, C. DeW., surgeon, detached from Naval Recruiting Station, Providence, R. I., and to Naval Training Station, Newport, R. I., and additional duty on the *Constellation*.

Bucher, W. H., surgeon, detached from Naval Medical School and to Naval Recruiting Station, Providence, R. I.

Smith, H. L., acting asst.-surgeon, appointed an acting assistant surgeon in the Navy from July 5, 1906.

Payne, J. H., Jr., P. A. surgeon, detached from U. S. S. *Nashville* when out of commission, home and wait orders.

Butts, Heber., asst.-surgeon, ordered to the U. S. Naval Academy, Annapolis, Md.

Raison, T. W., asst.-surgeon, ordered to the U. S. Naval Hospital, Norfolk, Va

Hoehling, A. A., medical director (retired), detached from Naval Medical Examining Board, Washington, D. C., and to his home.

Public Health and Marine-Hospital Service.

List of changes of station and duties for commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending July 11, 1906.

Sawtelle, H. W., surgeon, granted leave of absence for two months from July 5, 1906, on account of sickness.

Rosenau, M. J., P. A. surgeon, granted leave of absence for three days from July 8, 1906, under Paragraph 189 of the Regulations.

Stansfield, H. A., P. A. surgeon, granted leave of absence for one day, July 4, 1906, under Paragraph 191 of the Regulations.

Schereschewsky, J. W., P. A surgeon, granted leave of absence for two days, from June 28, 1906, under Paragraph 191 of the Regulations.

Roberts, N., asst.-surgeon, relieved from duty at Fort Stanton, N. M., and directed to report at the Bureau, Washington, D. C., for temporary duty in the Hygienic Laboratory.

Smith, F. C., asst.-surgeon, granted leave of absence for seven days.

McConnell, E. F., acting asst.-surgeon, assigned to duty at Banes, Cuba.

Rodman, J. C., acting asst.-surgeon, granted leave of absence for ten days from June 29, 1906.

Smyth, F. B., acting asst.-surgeon, granted leave of absence for five days from July 3, 1906.

Stuart, A. F., acting asst.-surgeon, granted leave of absence for twenty-one days from July 9, 1906.

Walker, T. D., acting asst.-surgeon, leave of absence granted for eight days from June 8, 1906, amended to read six days from June 5, 1906.

Gibson, R. H., pharmacist, granted leave of absence for four days.

Brown, F. L., pharmacist, relieved from duty at Pittsburg, Pa., and directed to proceed to Baltimore, Md., reporting to the medical officer in command for duty and assignment to quarters.

McKay M., pharmacist, relieved from duty at Washington, D. C., and directed to proceed to Savannah, Ga., via Cincinnati, reporting to the medical officer for duty.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the surgeon-general, Public Health and Marine-Hospital Service, during the week ended July 13, 1906:

SMALLPOX—UNITED STATES.

California: Stockton, June 1-30, 1 case.
Florida: Jacksonville, June 23-July 7, 2 cases.
Georgia: Augusta, June 25-July 9, 6 cases.
Illinois: Galesburg, June 23-July 7, 27 cases, 1 death.
Louisiana: New Orleans, June 23-July 7, 12 cases, 2 deaths.
Maine: Houlton, July 6, 1 case.
Massachusetts: New Bedford, June 30-July 7, 5 cases.
Missouri: St. Louis, June 30-July 7, 3 cases.
Nebraska: Omaha, June 8-30, 7 cases.
New York: New York City, June 23-30, 3 cases.
Ohio: Cincinnati, June 29-July 6, 1 case.
Oklahoma: Oklahoma City, June 8-July 7, 19 cases, 1 death.
Tennessee: Knoxville, June 23-30, 1 case (imported). Memphis, June 23-July 7, 5 cases.
Wisconsin: Appleton, June 23-30, 1 case; La Crosse, June 23-30, 2 cases; Milwaukee, June 29-July 7, 1 case.

SMALLPOX—INSULAR.

Philippine Islands: Manila, May 12-26, 5 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, May 19-June 2, 8 cases.
Brazil: Rio de Janeiro, May 27-June 10, 1 case.
Canada: Toronto, June 16-30, 3 cases.
France: Paris, June 16-23, 15 cases.
Gibraltar: June 10-24, 5 cases, 1 death.
Great Britain: Hull, June 16-23, 1 case; London, June 16-23, 7 cases.
India: Bombay, June 5-12, 8 deaths; Calcutta, May 26-June 2, 40 deaths; Karachi, June 3-10, 10 cases, 3 deaths; Madras, June 2-8, 2 deaths; Rangoon, May 26-June 2, 12 deaths.
Italy (general): June 14-21, 14 cases.
Russia: Odessa, June 9-23, 15 cases, 1 death; St. Petersburg, June 2-16, 8 cases, 4 deaths.
Spain: Barcelona, June 10-20, 5 deaths; Seville, May 1-31, 53 deaths.

YELLOW FEVER.

Costa Rica: Limon, June 23, 1 case.

CHOLERA—INSULAR.

Philippine Islands: Manila, May 12-26, 4 cases, 4 deaths; provinces, May 12-26, 39 cases, 28 deaths.

CHOLERA—FOREIGN.

India: Bombay, June 5-12, 21 deaths; Calcutta, May 26-June 2, 41 deaths; Madras, June 2-8, 2 deaths; Rangoon, May 26-June 2, 2 deaths.

PLAGUE.

Brazil: Rio de Janeiro, May 27-June 3, 1 case, 1 death.
Egypt: Alexandria, June 15-21, 2 cases, 2 deaths; Beni Souef Province, June 18, 1 case; Garbeih, June 16, 1 case, 1 death.
India: General, May 12-19, 13,061 cases, 11,783 deaths; May 26-June 2, 7,888 cases, 7,027 deaths; Bombay, June 5-12, 106 deaths; Calcutta, May 26-June 2, 57 cases; Karachi, June 3-10, 69 cases, 63 deaths; Rangoon, May 26-June 2, 53 cases.
Peru: General, June 9, 4 cases; Lima, June 2-9, 1 case.

Book Notices

THE PHYSICAL EXAMINATION OF INFANTS AND YOUNG CHILDREN. By T. W. Kilmer, M.D. Illustrated with 59 half-tone engravings. Cloth. Pp. 86. Price 75c net. Philadelphia: F. A. Davis & Co., 1906.

This work treats of many points in the examination of infants generally overlooked in the larger text-books. Kilmer mentions the different types of children and the ways of handling each. The causes of a baby's cry are enumerated with the means of distinguishing them. The various steps in a physical examination—mensuration, palpation, examination of eyes and ears, etc.—are given, and each step is shown in illustrations. The book should be of value to every general practitioner and especially to the recent graduate.

PATHOLOGY, GENERAL AND SPECIAL, for Students of Medicine. By R. T. Hewlett, M.D., M.R.C.P., D.P.H., Professor of General Pathology and Bacteriology in King's College, London; Lecturer on Bacteriology, London School of Tropical Medicine, etc. Cloth. Pp. 540. Price, $3.25. Philadelphia: P. Blakiston's Son & Co., 1906.

Hewlett's book is a small volume designed especially for the use of students, to whom it should prove useful as an introduction to the study of pathology. The ground is well covered and the discussion of the various subjects, especially of those under the heading of "General Pathology," is up to date and yet conservative. The tone is not offensively dogmatic, but rather suggestive and stimulating. On this account this book should find favor with teachers who feel that they must recommend to their students a given book of small size.

TREATISE ON DISEASES OF THE SKIN. For the Use of Advanced Students and Practitioners. By H. W. Stelwagon, M.D., Ph.D., Fourth Edition. Thoroughly Revised. 258 Illustrations and 32 full-page lithographic and half-tone plates. Cloth. Pp. 1136. Price, $6.00 net. Philadelphia: W. B. Saunders & Co., 1905.

This work has been revised, many illustrations have been added and redundant matter has been deleted. The subject-matter is well arranged and clearly presented. Considerable space is devoted to treatment, many valuable prescriptions are given. While the symptoms and differential diagnosis of syphilis receive much attention, no mention is made of the *Spirochæte pallida*, the now generally accepted cause of syphilis. The illustrations are excellent.

CONSUMPTION, Its Relation to Man and His Civilization. Its Prevention and Cure. By J. B. Huber, A.M., M.D., Fellow of the New York Academy of Medicine; Member of the National Association for the Study and Prevention of Tuberculosis. Cloth. Pp. 536. Price, $3.00 net. Philadelphia: J. B. Lippincott Co., 1906.

Dr. Huber's book deals with tuberculosis from a broad point of view and contains a mass of information concerning all phases of human tuberculosis of especial interest to intelligent persons in general, whether medical or non-medical. It should have a wide circulation among all who are interested in tuberculosis, and is just such a book as the physician has frequent opportunity to put into the hands of laymen for purposes of instruction and also guidance. The most technical matters are put for the most part in appendices. The general considerations, the specific cause, predisposition, the sociologic factors, the rôle of the home, prevention, cure, sanatoria, various governmental and non-governmental activities—to mention the general scope of the principal parts of the book—are discussed in such form and language as to be comprehended readily and to interest intelligent persons of all kinds. The author's object is to enlist economic, legislative, sociologic and humanitarian forces in the fight against tuberculosis, which can not be successfully carried on by medical science alone and unaided. Practitioners and students of medicine will find that it will broaden their interest in and conception of tuberculosis to read this book, which is heartily commended to physician and layman alike.

COLLECTED STUDIES ON IMMUNITY. By Prof. P. Ehrlich, Privy Councilor and Director of the Royal Institute for Experimental Therapy, Frankfürt, Germany, and by his Collaborators. A Chapter written expressly for this Edition by Prof. Ehrlich. Translated by C. Bolduan, First Edition. Cloth. Pp. 586. Price, $6.00. New York: John Wiley & Sons, 1906.

An extended review of the subject-matter in this volume does not seem necessary. The original was published in 1904 and Dr. Bolduan's translation includes some recent contributions from Professor Ehrlich's institute as well as a new special chapter by Professor Ehrlich himself. The translation appears to be very satisfactory. The original volume was highly welcome to the numerous workers in the field of immunity, and the present translation places the experimental investigations that form the basis of Ehrlich's genial lateral chain theory of immunity within the ready reach of physicians and others who prefer to use the English language. It goes without saying that the book is indispensable to any such who may desire to go to the original sources in their study of fundamental problems in immunity. The chapters on technic will prove useful to many, even to those who can not themselves make illustrative experiments, because by reading these chapters one gets a much better and clearer understanding of the manner in which the results discussed elsewhere were obtained.

CLINICAL APPLIED ANATOMY, or the Anatomy of Medicine and Surgery. By Charles R. Box, M.D., B.S., B.Sc., M.R.C.P., F.R.C.S., physician to out-patients of St. Thomas's Hospital, and W. McAdam Eccles, M.S., F.R.C.S., Assistant Surgeon, Joint Lecturer on Anatomy and Demonstrator of Operative Surgery at St. Bartholomew's Hospital. Illustrated by 45 plates, of which 12 are colored, and 6 figures in the text. Cloth. Pp. 471. Price, $4.00. Philadelphia: P. Blakiston's Son & Co., 1906.

The title of this work would be misleading if one's opinion were formed by the contents of other "applied anatomics" that have recently appeared, for it is not a work on anatomy as such, nor does it attempt to go into the applied anatomy of surgical operations. One is rather struck at first on seeing the applied anatomy of measles, tetanus, tapeworm, filaria, etc., described along with that of tumors, fractures, heart disease, spinal cord lesions, etc., but the idea of the authors has been to point out in a practical clinical way the relations of anatomy to the various diseases, and to show the great value of a knowledge of anatomy in diagnosis and treatment. In this respect it differs from most applied anatomies, and the change is a desirable one and one that can be commended, as but too frequently this most fundamental branch of our science is too much neglected. The work will bear close study and will yield much of value in return.

THE OPERATING ROOM AND THE PATIENT. By R. S. Fowler, M.D., surgeon to the German Hospital, Brooklyn, New York. Fully Illustrated. Cloth. Pp. 172. Price, $2.00 net. Philadelphia: W. B. Saunders Co., 1906.

This little work is especially adapted to the use of internes and nurses. In plain and concise terms it describes the paraphernalia and arrangement of the operating room, and gives detailed information in regard to the sterilization and preparation of dressings, solutions and other accessories of the operating room. The preparation of the patient for operation, his various positions on the operating table, and the dressing of the wound after completion of the operation are adequately described. The chapter on anesthesia should prove valuable to the beginner. The after treatment of surgical cases is carefully described. The accidents following operation are enumerated and their treatment considered. It is to be regretted that the subject of post-operative shock has been somewhat slighted. As this is one of the most important of the accidents following operation, and one which demands instant and energetic treatment the lack of a description of the modern methods of meeting this emergency is conspicuous. The closing chapter, which gives a tabulated list of the instruments, sutures, dressings, etc., necessary for a large number of the common operations, should prove especially valuable to the operating-room nurse.

WALTER REED AND YELLOW FEVER. By Howard A. Kelly, M.D., Professor of Gynecologic Surgery, Johns Hopkins University. Cloth. 12mo. Twelve half-tone illustrations. Pp. 203. Price, $1.50 net. New York: McClure, Phillips & Co., 1906.

No book will be more welcome than this biographical sketch of the man to whom the world is indebted for the greatest medical discovery since that of anesthesia—the knowledge of the direct cause and means of prevention of yellow fever. Born in 1851 in Virginia, Walter Reed graduated third in his class, before he was 18 years of age, from the Medical Department of the University of his native state. From this time on Reed's life was one of continual struggle, for his ambition was always stimulating him to prepare himself still better for what he realized, in an unusual degree, to be the grave responsibilities of the profession he had chosen. In a year after his graduation in medicine in Virginia, he had earned and obtained an M.D. degree from Bellevue Hospital Medical College. Then he became attached to several hospitals of New York and Brooklyn, and later received the appointment as district physician of one of the poorest districts in New York. At 22 he had become one of the five inspectors of the Brooklyn Board of Health. Thus his work was of the non-productive kind, financially, but it was the kind that made for self-improvement in that which would make him a better physician. Finally his ambition led him to try for a position as army surgeon, and for months he bent all his energies to prepare himself for examination for that service, and in 1875 he received his commission as assistant surgeon in the U. S. Army. The next year he was sent to Arizona, and for years suffered the hardships of a surgeon at a frontier post. In 1889, after being stationed at various posts, west, east and south, he was ordered to Baltimore; and this was the beginning of that new life and higher ambition which led him on to the great work that has made his name known the world over. Here he came under the influence of Dr. Welch and others connected with the new departure in scientific medical training at Johns Hopkins Hospital, an influence that stimulated him for the rest of his life.

But the personal life of Dr. Reed occupies but a minor portion of the book; the history of yellow fever in the past, the discussion of the various theories concerning its propagation and its contagiousness and non-contagiousness, an account of some of the important epidemics of yellow fever, the discoveries regarding the rôle of mosquitoes in the transmission of malaria, and, in brief, a summary of the important work and discoveries which led to the undertaking in Cuba, occupy more space than does that which is devoted to the life of Reed. The experimental work of Reed and his fellows on yellow fever in Cuba is, of course, covered thoroughly. A chapter is devoted to a brief account of the life and work of Drs. James Carroll, Aristides Agramonte and the lamented Jesse W. Lazear, the associates of and co-workers with Reed in the yellow fever investigation.

To the physician or the layman who is desirous of obtaining a concise history of the discovery of the cause of yellow fever, and of the men connected with the discovery, we recommend this volume. It is as interesting as a novel, for while the subject necessarily includes much that is scientific, the author has presented the matter in a manner that is easily comprehended, even by those who know nothing of medicine.

CARBOHYDRATE METABOLISM (A Course of Advanced Lectures in Physiology delivered at the University of London, May, 1905), with an Appendix on the Assimilation of Carbohydrate into Proteid and Fat, Followed by the Fundamental Principles, and the Treatment of Diabetes Dialectically Discussed, by F. W. Pavy, LL.D., F.R.S., Honorary Physician to King Edward VII Hospital; Consulting Physician to Guy's Hospital. Cloth. Pp. 131. Price, $2.40. Philadelphia: P. Blakiston's Son & Co., 1906.

These lectures are largely devoted to an exposition of Pavy's original views concerning carbohydrate metabolism. He opposes vigorously the generally-accepted doctrine, developed from Bernard's researches, that glycogen represents a resting stage in the metabolism of sugar. Glycogen, according to Pavy, is not normally converted again into sugar; indeed, he considers that carbohydrates do not normally enter the circulation from the intestine, but are converted by the lymphocytes into proteid and by the intestinal epithelium into fat. It can not be said that the discussion of the topic in this book is either strikingly lucid or convincing. Although Pavy has now, for some time, been urging his views, they are not generally accepted by physiologists and chemists as having overthrown the long-established view that glycogen is converted normally into sugar whenever the quantity in the blood has

been reduced below normal through its combustion in the muscles and other active tissues. Thus Macleod, in a recent review of the theories of carbohydrate metabolism and glycogenesis ("Recent Advances in Physiology and Biochemistry," page 337), discussing Pavy's hypotheses, sums up his conclusions tersely as follows: "The balance of evidence stands in favor of Bernard's theory."

PRACTICE OF GYNECOLOGY, In Original Contributions, by American Authors. Edited by J. Wesley Bovée, M.D., Professor of Gynecology, George Washington University, Washington, D.C. Illustrated with 382 Engravings and 60 full-page Plates. Cloth. Pp. 836. Price, $6.00 net. Philadelphia: Lea Brothers & Co., 1906.

The seven contributors to this volume are the editor, J. Wesley Bovée, Washington; J. Riddle Goffe, New York; G. Brown Miller, Washington; Geo. H. Noble, Atlanta, Ga.; Benj. R. Shenck, Detroit; Thomas J. Watkins, Chicago; and X. O. Werder, Pittsburg. The advantages of the collaboration of a number of original workers in securing a breadth of view not obtainable in the work of a single author, is referred to by the editor in his preface and demonstrated in certain parts of the book. Thus the discussion of lacerations of the perineum and the description of the old and the new methods of repair by Noble is a credit to the book and a good example of the advantage of leaving special subjects to those who have given them special study. The same may be said of the chapters on fistulas by Noble, of the vaginal method of operation by Goffe, and of his description of the method of shortening the uterosacral ligament and of the discussion of infections of the tube by Watkins. Most of the other subjects are well presented, although not always showing, perhaps, such special original work.

The recent works on operative gynecology, both in English and German, have presented the technic of operations so well and in such detail and with such wealth of illustrations that a general work on gynecology like this one, which does not attempt to compete with them in description of operative technic, is put to some disadvantage. Those who are familiar with these elaborate illustrated special monographs or special operative treatises may be at times somewhat disappointed to find here very meager descriptions or only allusions to important operative proceedings. This lack of fullness is due of course to the limits that have been set by the editor and publisher, who have evidently planned a work that shall be a text book for students as well as a short handbook for the practitioner of medicine. It is a question if the time has not come for the production in this country of a more complete and comprehensive handbook of gynecology that can be brought into favorable comparison with the German handbook of Veit, published about ten years ago. No one doubts the ability of the editor of this system and his collaborators, co-operating with other American workers in this field, to accomplish this task. With such an ideal in mind one is a little disappointed to notice the meager treatment and even the absence of a discussion of certain phases of the most important subjects. The absence of a chapter on the affections of the pelvic connective tissues, to which is given 200 pages in Veit's book, is an example of the disadvantages of a book like the one under consideration when compared with one not so restricted in its scope. Likewise the 35 pages given to cancer of the uterus, when contrasted with the 310 pages in Veit, leaves necessarily many of the questions of this important subject untouched. Similar criticism could be made of the treatment of the other tumors and also of the brief chapter on the technic of abdominal operations. These remarks are suggested by the preface of the editor, who intimates that the work contemplates a more comprehensive treatment of the subjects than is to be expected in an ordinary text book. The breadth of view which he aims at is generally obtained, but a satisfactory comprehensive treatment can be secured only by expanding the plan and utilizing all the resources which lie at his command and which the experienced generous publishers could well supply.

Within the limits set by the editor the work is as a whole interesting and commendable and in its execution a credit to the publishers. Because of its practical as well as its scientific character it should prove a popular text book for students and a valuable concise handbook for the general practitioner.

Travel Notes

DISEASES AND HOSPITALS OF THE EAST COAST OF AFRICA.

(Continued from page 143.)

NICHOLAS SENN, M.D.

Professor of Surgery in the University of Chicago, Professor and Head of the Surgical Department, Rush Medical College.

CHICAGO.

Mozambique, East Coast of Africa, June 2, 1906.

DAR-ES-SALAAM.

Dar-es-Salaam is the capital of German East Africa. Its present population is 50,000, among which there are 500 Germans and many Arabs, East Indians and Goanese. The Goanese are preferred as employés in government offices and the Arabs and East Indians are engaged in business. The city has excellent streets and the public buildings are solid structures which would do credit to any of the smaller cities in Germany. The Roman Catholic cathedral and the protestant church are ornaments to the city and do credit to the denominations they represent. The government school for children, the protestant mission, the hospitals, park, botanical gardens, club house, and the weekly paper published in German, speak well for the intellectual life of the small German population, and serve as useful object lessons for the natives. The harbor is excellent, land-locked, and large enough for as extensive a commercial fleet as will ever enter this port, even if the city should eventually reach the size and importance now prophesied by its most enthusiastic citizens. The railroad now under construction will open up, in a short time, a vast territory in the interior of the colony. The part of the city occupied by the natives has wide, straight, well-kept, clean streets, and is well policed. The Swahili, the real owners of the land, are looked on with mistrust, and this feeling will not be remedied until the natives in the interior lay down their arms for good and submit to the inevitable. Krupp guns and breech-loaders against spears and arrows will eventually make these savages abandon all hope of continuing to think, live and act as they have done for unknown centuries, and they will have to submit to the yoke of a foreign, newly-organized administration, backed and supported by the imperial government of Germany. The sanitary conditions of the city are being improved rapidly and its present comparative healthfulness is attracting an increasing number of new comers from Germany, among them men of means and enterprise. The water supply is obtained from wells, and from these the water is pumped into a large reservoir which supplies all parts of the city. A system of sewerage is contemplated. As in all coast cities petroleum furnishes the light.

HOSPITALS OF DAR-ES-SALAAM.

The Government Hospital of this city is without question the finest and most complete hospital in all Africa (see illustration). It is an object lesson which it would be well for other nations who assert a claim on African soil and natives to study and imitate. The Germans take just pride in this magnificent institution. The government expended at least $100,000 in building it, and provides ample means for its maintenance. It is located on the sea coast about a mile from the business center of the city. A broad palm-lined chaussée passing through a park-like part of the city, dotted here and there with handsome residences and skirting the missionary station, terminates at the boundary of the hospital grounds which are tastefully laid out and ornamented with trees, shrubs and a profusion of flowers, indigenous and imported, which, owing to their great variety, charm the eye throughout the entire year.

The architecture of the hospital is massive and the style somewhat unique. The style is decidedly German, but adapted to this climate. The main building is two stories high and its different parts are connected by arched, columned galleries.

The mortuary chapel and laboratory are separate buildings. The interior corresponds in beauty of design and comfort with the external aspects of the building. The private rooms are large and well, even luxuriously, furnished. The director's apartments, in a separate building, connected by a roofed corridor with the hospital, are a picture of comfort and elegance such as we would look for in vain in any of our hospitals.

Dr. Exner, a staff surgeon of the German army, is the present director or chief of the hospital. He is a scientist as well as a surgeon of more than average ability. Like all other military surgeons stationed on the coast whom I have met, he was very courteous and took great pains to show and explain the workings of the institution and to describe the nature of the diseases of the patients under treatment. He is the recognized surgeon of German East Africa. One assistant and five trained female nurses assist him in his work. The operating room is modeled after those of the Eppendorf Hospital, Hamburg, and is well supplied with instruments and appliances for strict surgical asepsis. Blood examinations and prophylactic treatment of malaria are carried on here on a large scale, the actual work being done largely by the trained nurses, who are very skilful in the use of the microscope, and assiduous in their work to give the blacks the benefit of science so recently planted in African soil.

Government Hospital at Dar-es-Salaam; German East Africa, seen from the seaward side.

The hospital is devoted to the care of sick Europeans, although the better class of Eurasians and Goanese in the employment of the government are admitted. Capacious and imposing as the hospital is, it can accommodate only 38 patients. In pondering over this the idea occurred to me that as far as the welfare of the blacks is concerned, which the government ostensibly has in view, it would have been better to have expended less money on this building and more on the hospital for the blacks, which leaves much to be desired. The kitchen is in a separate one-story addition, connected with the hospital by an open but covered corridor. It is presided over by one of the nurses, but the work is done by young black men dressed in garments which cover only a small part of their coal-black bodies. One of the interesting features of this hospital is the large, separate one-story building devoted to malaria patients. These patients are practically in quarantine until their blood is free from malaria parasites, microscopic examinations being made at intervals of a few days. All windows and entrances are guarded with fine-meshed aluminum screens. Iron and brass screens were found useless, as these metals are speedily destroyed in this climate, but aluminum has stood the test well, the only objection to it being the greater expense. A number of patients suffering from chronic malaria were under treatment, including a few Hindus and Goanese. A European was confined to bed and very ill with black-water fever. The urine collected in a vessel was deeply stained, almost black, with the coloring material set free by the dissolution of the red corpuscles of the blood as the result of a neglected case of malaria. Officers and civil government officials and their families are admitted free. Private citizens who have means pay nine marks a day.

The laboratory is well equipped for all kinds of bacteriologic research. As the hospital faces the Indian ocean, the patients receive the benefits of the soothing and cooling sea breeze.

Staff Surgeon Dr. Meixner is at the head of the sanitary department of the whole colony, and directs his work from Dar-es-Salaam.

SCIVA-HADJI HOSPITAL.

This is the hospital for the blacks, located opposite the barracks of the native troops. It consists of a number of one-story stone and cement cottages, arranged around a square, and has accommodation for 100 patients. It is the hospital to which all black soldiers are sent in case of wounds, injuries or disease. The government contributes annually 5,000 rupees toward its support. This small allowance renders the utmost economy a matter of stern necessity. Dr. Gross of the German army is surgeon-in-chief, and is assisted by a lieutenant surgeon, three white men of the hospital corps, and a number of native helpers. Although women furnish no small part of the patients in this hospital, there is no special provision made for their nursing. The furnishing of this hospital is in strong contrast with the one I have just described, being primitive and defective. There is no operating room. If an operation must be performed it has to be done in one of the wards and the instruments must be brought from the outside as there are none here. I found here a number of old gunshot wounds. In one case a severe infection made it necessary to amputate below the knee joint; in another case a bullet was recently extracted from a suppurating knee joint and the patient was on the way to recovery with an ankylosed knee joint, but with the limb in a useful position.

REGULATION OF PROSTITUTION.

In one of the female wards were about fifteen public women who are detained here until they recover from their loathsome diseases, when they are given a certificate to that effect, and return to their former business. These women stood in a row when we entered the ward and their bold unconcerned attitudes and behavior showed that they were no novices. If a soldier contracts a venereal disease he is compelled to give the name and address of the woman who is responsible for his condition. The police is then ordered to seize her and bring her to the hospital for treatment, where she is detained until cured. This quasi regulation of prostitution is a military necessity in this country and undoubtedly is useful in preventing an alarming spread of venereal diseases. These diseases are very common among the native troops and are widely diffused among the blacks all along the coast. The sick prisoners are also cared for here without any special precautions to prevent their escape.

None of the physicians of Dar-es-Salaam has encountered a case of carcinoma, with the single exception of the case of carcinoma of the stomach previously alluded to, nor has a case of appendicitis been found in the blacks, and as this experience is in accord with that of all physicians on the east coast of Africa, we must take it for granted that the negroes of Equatorial Africa are practically immune. Beriberi is occasionally seen and frequently seriously affects muscle power, simulating locomotor ataxia. A case of this kind was in the hospital under treatment at the time of my visit. Pulmonary tuberculosis is on the increase, while surgical tuberculosis is almost unknown. Several anopheles caught in the ward that morning were under glass for future microscopic examination. A very large percentage of the patients now under treatment is afflicted with chronic malaria. The blacks never suffer from black-water fever. This complication of neglected malaria affects exclusively the foreigners and especially the Europeans.

Ankylostomiasis is very common. Treatment with thymol has proved very unsatisfactory, owing to the frequency with which relapses take place, and at present eucalyptus oil, praised highly by a Dutch physician, is on trial, but its place will soon be taken by beta naphthol, a safer, more effective and less disagreeable drug. Dysentery of a comparatively mild type occurs here as in all other places along the coast. Rheumatism is almost unknown among the natives. Children frequently suffer from diarrhea in consequence of faulty feeding, and as the parents often fail to provide medical aid, the mortality from this disease is considerable.

(To be continued.)

Society Proceedings

COMING MEETINGS.

American Orthopedic Association, Toronto, Canada, Aug. 20-21.
British Medical Association, Toronto, Canada, Aug. 21-25.
American Roentgen Ray Society, Niagara Falls, Aug. 29-31.
Am. Academy of Ophthal. and Otolaryn., Detroit, Aug. 30-Sept. 1.
Western Surgical and Gyn. Ass'n., Salt Lake City, Aug. 31-Sept. 1.

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Seventeenth Meeting, held in New York, May 23, 1906.

The President, SIMON FLEXNER, in the Chair.

Analogies Between Phosphorized Fats Obtained from Brain and Kidney.

During investigations of alcoholic extracts of kidneys DR. EDW. K. DUNHAM has been led to infer that substances closely related to the lipoids derived from the brain may be obtained by similar methods from the kidney. Extracts of finely-divided renal tissue, freed from obvious fat, made with hot 85 per cent. alcohol, yield a precipitate on cooling which contains a variety of lipoids, while certain others remain in solution. For convenience those lipoids which are relatively insoluble in cold alcohol may be classed as the "protagon" group and those not precipitated on chilling as the "lecithin" group. A preliminary purification of the "protagon" group was effected by treating the crude precipitate with benzol, which left a small residue undissolved. From the concentrated solution in benzol a powdery precipitate was formed on the addition of a mixture of acetone and rhigolene and became pure white when repeatedly washed with the latter mixture, in which it was nearly, if not wholly, insoluble. This precipitate was soluble in hot 85 per cent. alcohol, from which it separated in discoid crystals on cooling the solution. It contains 2.869 per cent. of phosphorus and 3.125 per cent. of nitrogen.

A portion of this precipitate was dissolved in hot 85 per cent. alcohol and an alcoholic solution of lead acetate added in excess. The mixture was boiled and filtered while hot. On cooling a heavy white crystalline precipitate formed. This was removed by filtration and recrystallized from 85 per cent. alcohol four times. The white crystalline powder so obtained was analyzed. The solubilities and reactions of this substance correspond to sphingomyelin. On hydrolysis with barium hydrate this substance from the kidney yields ammonia, trimethylamin, a substance reducing Fehling's solution, and apparently an acid forming a barium salt which is insoluble in a mixture of absolute alcohol and ether. These cleavages are analogous to those observed on hydrolysis of sphingomyelin.

A portion of the lead-free substance was dissolved in hot 85 per cent. alcohol and precipitated with cadmium chlorid in alcoholic solution. The precipitate was removed by filtration, redissolved in 85 per cent. alcohol and kept at 30 C. over night. This procedure separates kerasin from sphingomyelin.

The percentages of cadmium chlorid found in the similar products from the kidney fall within these limits, and the percentage of cadmium and chlorin are in close accord with the assumption that the cadmium is present as chlorid, indicating that the salt is an addition product. The acetone-rhigolene mixture used in the preliminary purification of the "protagon" group contains substances which possess solubilities similar to those of kephalin and myelin, both before and after precipitation with lead acetate. But these substances have not yet been obtained in sufficient quantity for satisfactory purification. They appear, however, to contain more phosphorus (over 4 per cent.) and less nitrogen (about 1 per cent.) than the analogue of sphingomyelin already considered, and these characters are also in harmony with analyses of kephalin, myelin and sphingomyelin.

Still other compounds containing phosphorus, nitrogen and fatty acids have been obtained from the renal extracts and appear to be analogous to substances derived from the brain.

The Toxicity of Indol.

A. N. RICHARDS and JOHN HOWLAND made these experiments as a part of a study of the etiologic factors in recurrent vomiting in children. At the beginning of these seizures there were signs of diminished oxidation (increased elimination of uric acid, neutral sulphur, lactic acid, aceton bodies) and an abnormally intense indican reaction. It is believed that failure to oxidize completely substances of the type of indol results in the production of distinct mental symptoms and in the partial excretion of the substances into the gastrointestinal tract. The disturbance induced by such substances is capable of producing nausea and vomiting.

Formation of Urea.

L. B. STOOKEY and A. S. GRANGER found that subcutaneous injection of liver extracts (dog) led, in the dog, to an increased elaboration of nitrogenous end-products into urea. Liver extracts which had been heated to 55° were not found to possess this stimulative action. These results might indicate an enzymatic formation of urea. Further experiments are in progress.

Effects on Embryonic Development of the Roentgen Rays Acting on the Spermatozoa of the Toad Previous to Fertilization.

DR. C. R. BARDEEN said that experiments have shown that spermatogenesis may be inhibited by exposure to the Roentgen rays or radium. The direct action of the rays on the spermatozoa has not been studied. It occurred to Bardeen that it would be interesting to see if spermatozoa could be injured by the *x*-rays, and, if so, what the effect would be on the development of ova fertilized by spermatozoa thus injured. During the short breeding season of the toads he collected daily several pairs of toads, separated the males from the females and from the males got enough sperm to make a slightly cloudy suspension in water. This suspension he divided into two parts, one of which was kept for control, while the other was exposed for from an hour and a half to two hours and a half to powerful Roentgen rays. He then opened several of the females, until, when possible, he found one in which the eggs seemed abundant and ready to be discharged. He removed two short strings of eggs and divided each string into two parts; one part he placed in the control dish, the other in that which had been exposed to the rays. After about fifteen minutes he placed each string in a separate dish of water. Several of his experiments proved of negative value, either because not even the spermatozoa of the control dish proved capable of fertilizing the eggs, owing to the time which had elapsed since the removal of the sperm from the male, or because none of the females had happened to have ova in the right condition to be fertilized. The thoroughly successful experiments, owing to the short season of mating, were few in number, but they were convincingly positive. All eggs fertilized by the control spermatozoa developed normally. Only one egg out of between fifty and a hundred fertilized by the exposed spermatozoa developed at all normally. All the others showed marked defects in development.

The author's results may be briefly summarized as follows: 1. The spermatozoa of the common toad retain power of movement and fertilization for from one-half to nearly three hours in a dish of lake water at room temperature. On hot days they die sooner than on cool days. 2. Spermatozoa when under exposure of Roentgen rays die sooner than when not thus exposed. 3. When spermatozoa are exposed to the rays so long that very few are capable of fertilizing ova, the eggs thus fertilized usually do not develop into larvæ, but they may do so. 4. When spermatozoa have been exposed for a considerable period to the rays and yet are still capable of fertilizing a considerable proportion of eggs placed in the same dish, the eggs develop at first apparently normally, but beyond the gastrula stage the development becomes retarded and the resulting larvæ are markedly deformed. These deformities are quite varied. In one larva, for instance, a considerable part of the central nervous system and the gills were undeveloped on one side, while the abdominal viscera were developed only on that side. In another the central nervous system was abnormal on both sides and the alimentary canal quite defective. Considerable further study is necessary to determine accurately the nature of all the abnormalities present in the various monsters he has preserved. Apparently all are defect abnormalities.

From the results obtained it may be concluded: 1. That nuclear material may be so influenced by exposure to the Roentgen rays that after a latent period it will call forth marked abnormalities in development. 2. That injury to spermatozoa capable of fertilizing ova may cause the development of monsters from the ova thus fertilized.

A Vago-esophageal Reflex.

DRS. S. J. MELTZER and JOHN AUER discovered that in dogs a tetanic contraction of the entire esophagus can be caused by reflex ways. When the vagus is cut in any part of the neck an electric stimulation of its central end causes a prompt longitudinal and circular contraction of the entire esophagus, which lasts as long as the stimulation continues. Particulars and other interesting facts connected with this observation will be reported later.

Ion Compounds, with Exhibition of Products.

DR. WILLIAM J. GIES, about five years ago, found that "when the electric current is passed through neutral or alkaline mucoid solutions (consisting of sodium or calcium salts of mucoids) turbidity results within a short time and flocks eventually form and can be filtered off. This observation was included in a preliminary report of work then in progress. Shortly afterward, in preparing material for work in another connection, the author precipitated from an alkaline solution (Na_2CO_3) of mucoid, with the aid of acetone after failure with alcohol, a water-soluble compound—apparently sodium mucoid. The author has lately prepared calcium, sodium, potassium and ammonium salts of mucoid by the following process: The glucoprotein was obtained in slightly alkaline solution. This solution was dialyzed until neutral and then was poured into a large excess of 95 per cent. alcohol, by which treatment the mucoid was immediately precipitated. Initial purification was effected by resolution dialysis and reprecipitation. The products were rendered anhydrous by treatment with absolute alcohol and ether. The comparatively pure salts thus prepared are light snow-white powders. They dissolve in water very readily. The concentrated solutions resemble mucus. The solutions are neutral to litmus and acid to phenolphthalein. Ammonium compounds have been prepared that were acid to litmus also. It is very probable that the mucins in the secretions occur in the form of such salts as Muller has already suggested. Yeast nucleoprotein has also yielded similar products. Presumably other nucleoproteins will do so also. Gies believes these observations clear the way for important discoveries connected with the glucoproteins, nucleoproteins, proteinates and similar protein products. Numerous studies in this connection were suggested in the oral communication to the society and are proceeding with the co-operation of the workers in the author's laboratory.

Some Facts Showing that Phrenosin and Cerebron Are Practically Identical.

DR. WILLIAM J. GIES is convinced that Thudichum's phrenosin, Gamgee's pseudocerebrin, Parcus' cerebrin, Kossel and Freytag's cerebrin, Thierfelder's cerebron and Koch's cerebrin are practically the same. Of the products referred to, phrenosin and cerebron have been subjected to the most thorough study. Each has been found to yield, on hydrolysis with dilute surphuric acid, apparently the same proportions of a sugar (galactose), a nitrogenous base (sphingosin) and a peculiar organic acid.

Electrical Annunciator for Use in Metabolism Experiments.

WILLIAM H. WELKER described an annunciator which consists of two square boards 4½x4½x¾ inches securely fastened together with a piano hinge on one side and kept apart by a spring perpendicularly arranged at the opposite side in such a way as to permit slight pressure to force the surface of the boards together. The spring can be adjusted so as to increase or decrease, within considerable limits of weight, the amount of force (weight) required to bring the boards in contact. In the opposed surfaces of the boards platinum electrodes (plate and points) are so placed that perfect contact between them is effected when the boards are brought together and the circuit is closed. The electrodes connect with binding posts on the hinged side. A small dry cell is used. The entire apparatus, including bell attachment, may be placed on a surface 5x8¼ inches. The bell employed directly with the apparatus is a small one, with delicate musical sound. Its ringing does not disturb the animal. It is obvious, of course, that the apparatus may be connected with a bell in a room some distance from that in which the animal is kept. The apparatus may be adjusted to announce a volume as small as 1 c.c. and may be made in larger sizes to announce the deposit of masses of any desired weight.

Presence of Albumin in Bile.

WILLIAM SALANT carried out experiments on dogs, each of which was under ether anesthesia, with temporary biliary fistula. The neck of the gall bladder in each case was ligated previous to the introduction of a cannula into the common bile duct. The bile was collected and tested for albumin according to Brauer's method. Either amyl alcohol or ethyl alcohol or a mixture of the two was injected into the stomach or small intestines. The bile collected was tested for albumin. The results obtained were not uniform. Distinct cloudiness on boiling appeared in the bile of one experiment before and after poisoning with amyl alcohol. On the other hand, in another experiment the bile remained perfectly clear on boiling before and even after injection of amyl alcohol. After the administration of small quantities of amyl alcohol, 5 c.c., etc., there was no albumino-cholia. Only after the injection of 20 to 30 c.c. did the bile become distinctly cloudy on boiling after slight acidification with acetic acid. In none of the experiments carried out as indicated were more than traces of albumin found in the bile. One experiment, however, on a dog poisoned with ricin was an exception. The dog received two subcutaneous injections of ricin, 1 mg. per kilo, in three days. He was found dead the day after the last injection. The bile removed from the gall bladder showed the presence of a considerable quantity of albumin. It seems probable, therefore, that the albumino-cholia after poisoning with ethyl or amyl alcohol, as observed in animals with permanent fistulas, might have been due to irritation of the bladder and only perhaps slightly to lesions in the liver. The question whether albumin passes more readily into the bile than it does into the urine was also studied. The results in every instance examined showed considerable quantities of albumin in the urine after poisoning with amyl alcohol.

AMERICAN ACADEMY OF MEDICINE.

Thirty-first Annual Meeting, held in Boston, June 2 and 4, 1906.

The President, DR. DONLY C. HAWLEY, Burlington, in the Chair.

Report of Committee to Investigate Comparative Value of First Degree in Medical Colleges.

DR. CHARLES MCINTIRE, chairman of the committee, quoted from an article in the *Bulletin* of the University College of Medicine of Virginia by Mr. William B. Miller, proctor, which shows that the movement for an educated medical profession has been recognized by legislation and that a kind of uniformity as to its extent has been determined practically for all the states by the far-reaching legislation of a few states. The problem now presented is how to secure a recognized uniformity commanding confidence and meeting with universal acceptance and co-operation. The committee formulated the following propositions: That in the discussions of the proper preparation in the practice of medicine the necessities of the preliminary education should be separated entirely from the requirements of the technical preparation; that a liberal education depends more on the way in which a subject is taught than on the subject itself. The universities should be the guardians of the American educational system and maintain the line of demarcation in its academic distinctions. The committee is of the opinion that the courses should be so arranged as to consume less time than they do at present, certainly for bright students. A solution of the conditions is not attempted, but the suggestion is made that the report be sent to a number of educators with a request for opinions and suggestions

and that a report be drafted on the replies and presented to the academy.

Maturation and Senility.

DR. A. L. BENEDICT, of Buffalo, referred to the different rates of maturation and senescence in animals and human beings and spoke also of cretinism and geromorphism. The variation of death rate and longevity for the sexes received full consideration. Other factors considered were physical definition of senility; diseases characteristic of extremes of life; essential identity of apparently widely different diseases, as apoplexy and diabetes; difference of diseases called by the same name, when occurring at early and late age. Inquiry was made whether old age is a cause of death; whether senility is distinct from the sum of cumulative pathologic processes, accidentally but practically inevitably encountered; whether a given degree of physical senility, as ordinarily estimated by years, is characterized by a corresponding degree of histologic degeneration. Capacity for mental work in relation to maturity and senility was considered, inquiring whether or not it depended on previous intellectual acquisition or exhaustion, or on essentially physical conditions of the brain.

DISCUSSION.

DR. J. W. GROSVENOR asked the author to give a definition of the term "senility." He had been unable to find a good definition of the word.

DR. T. J. SEARCY, Alabama, thought the natural processes of senility were illustrated in the process of the mental development of the person from childhood to old age. The senescence of a man, he thought, began with his acquiring ability; how soon it sets in and how soon the stage of senescence called dotage begins and how it differs in individual persons were regarded as interesting questions. Some men of 50 are as far advanced in the failure of mental ability as some at 80. This differs according to the tone of the system.

DR. CASEY A. WOOD, Chicago, remarked that one of the processes seen with advancing age is the change in the smaller vessels, and that only in the fundus of the eye could this be demonstrated. Some of the organic changes in the eye take place at the twenty-fifth year of age. In almost all persons past the fiftieth year these changes are present.

DR. LEARTUS CONNOR, Detroit, spoke of the difficulty of differentiating the natural changes in the eye due to advancing age and processes of disease.

DR. WOODS HUTCHINSON, Redlands, Cal., thought the tendency of the Anglo-Saxon race was to cling to life rather than to use every endeavor to make the most of it, being willing for old age to come as rapidly as it would.

DR. A. H. TUTTLE spoke of his studies of the life history of small sea animals, his observation of the development of the eggs in the sea water and under artificial means. According to change in environment there was marked change in the development of the animals and the production of monstrosities of all kinds. These changes, he felt, had a certain significance in connection with the development of malignant disease and especially of cancer. The changes of senility also had a certain bearing on the subject.

DR. JAMES A. SPALDING, Portland, Maine, related an instance in which there was a difference of fifty-eight years and ten months between the age of the first child of a given father and the last. He thought the study of the eye in old age offered a clew to the other conditions going on in the human frame, and therefore of interest in the study of senility. When one ceased to be useful and his friends had all gone long before, he thought it scarcely worth while to study to prolong life.

DR. WOODS HUTCHINSON thought the work of the profession was to make life more vigorous during its existence rather than to make it last longer. He would drive the machine as fast as possible while it lasted, and then to the scrapheap.

DR. FREDERIC H. GERRISH, Portland, Maine, thought that for every one old age was ever a receding point. In his early teaching career he had determined that when he reached the age of 60, if then teaching, he would resign, believing that schools were injured by retaining in the faculty men who had passed their prime. He thought it of immense practical value that young men likely to hold teaching positions should recognize the fact that they are not good judges of their own capacities when they get into the fifties and sixties.

DR. WILLIAM R. WHITE, of Providence, R. I., thought Dr. Hutchinson's theory would not work out satisfactorily in practice. The machines, instead of going readily to the scrapheap, were converted into neurasthenics, hemiplegics and other variously affected persons filling the asylums and institutions.

(To be continued.)

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

Twelfth Annual Meeting, held in Kansas City, Mo., June 11-13, 1906.

The President, DR. J. A. LOGAN, Kansas City, Mo., in the Chair.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. Wendell C. Phillips, New York; vice-presidents, Eastern Section, Dr. C. G. Coakley, New York; Middle Section, Dr. J. M. Ingersoll, Cleveland, O.; Western Section, Dr. W. C. Bane, Denver; Southern Section, Dr. J. M. Ray, Louisville, Ky.; secretary, Dr. Thomas J. Harris, New York; treasurer, Dr. Ewing W. Day, Pittsburg, Pa.

Endothelioma of Throat.

DR. J. A. LOGAN, Kansas City, Mo., had the patient under observation for about twenty-four days. When first seen the tonsil was the size of an English walnut and was filled with débris. Under *x*-ray treatment the growth has been reduced in size about one-fourth, after about eighteen treatments. The patient has also been given potassium iodid, up to 240 grains a day, but the use of the iodid was discontinued because it did not seem to do any good.

DISCUSSION.

DR. R. LEVY, Denver, thought that a radical procedure was indicated at once, the patient being in good physical condition. He has no faith in the curative properties of the *x*-rays.

DR. E. W. DAY, Pittsburg, Pa., also advised a radical operation. He cited three cases of sarcoma of the tonsil which had remained cured, twelve years, six years, and thirteen months, respectively. Every gland was removed in these cases, also a considerable portion of the tongue.

DR. J. BECK, Chicago, a year ago operated on a similar case and there is at the present time but a slight recurrence. He thinks radical treatment the only solution in these cases.

DR. M. A. GOLDSTEIN, St. Louis, has had two cases, one of endothelioma of the fauces and the other sarcoma of the tonsil, both of which seemed to react nicely to the *x*-rays given daily at first and then applied on alternate days for a month. He applies the rays directly to the part involved.

Middle Ear Suppuration as a Cause of Retropharyngeal Abscess.

DR. EDGAR M. HOLMES, Boston, thinks that retropharyngeal abscess in the adult, from any cause, is rare; that middle ear disease rarely advances forward, but is occasionally the cause of retropharyngeal abscess; that when it has occurred thorough removal of granular and necrotic material is indicated, and a free incision through the pharyngeal wall, index finger placed in cavity to act as guide in using small aural curette. This proceeding is followed by permanent recovery. The external routes of attack are available, but all of them, with the exception of removing the condyle of the jaw, offer little opportunity to inspect or attack the bone which is diseased.

DR. E. B. DENCH, New York, reported a case in which a 14 year old girl had been operated on for chronic middle ear suppuration, and after the operation she developed a temperature. Nothing was found in the throat. She was operated on again but died on the table from a cerebellar abscess which had not been diagnosed.

DR. F. E. MILLER, New York, reported two cases in infants, where quinsy and retropharyngeal abscess was present. The children almost succumbed after the lancing. A probe was later passed to where the tonsil has been. The ears had been examined, but had proven negative.

Infective Thrombosis of the Sigmoid Sinus.

DR. H. BERT ELLIS, Los Angeles, reported a case in which he resected the internal jugular, with the resultant recovery of the patient.

DISCUSSION.

DR. E. B. DENCH, New York, had seen a similar case in which there was a sudden rise in temperature. A thrombus extending to the jugular was found. Iodoform packing was put in to prevent infection from the broken down thrombus. The patient recovered.

DR. E. M. HOLMES, Boston, reported the case of a boy who had had headache for two days; he had had ringing in the ears for eleven years; temperature was normal. The ear had discharged a small amount of pus, but there was no tenderness or enlarged glands. The only marked symptom was a subnormal pulse, ranging from 42 to 50. When the mastoid was opened the cells were filled with granular tissue and the lateral sinus wall was of a darkish blue color and filled with pus. Before opening the sinus the jugular was tied and the upper portion dissected out, but there was still a dark appearance of the inner wall of the sinus. Incision was made and pus was evacuated. The patient at the present time is doing well.

Cause of Vocal Nodules.

DR. FRANK E. MILLER, New York, thought these nodules could be produced by means of infection of the tonsils and perverting the action of the thyro-arytenoideus externus muscle.

DR. D. BRADEN KYLE, Philadelphia, said that the singer's node was a tumor, but not a neoplasm. A cellular change occurs in the swelling. He thinks that it is an inflammatory process.

DR. J. A. STUCKY, Lexington, Ky., said that he has seen many singers' nodules and his experience has taught him that the less he treated the larynx the better for the patient. The cord should be given rest and the nodule will disappear. He relies on diet in connection with rest and no local treatment.

DR. G. HUDSON MAKUEN, Philadelphia, objected to the term singer's nodes as they occur in people who do not sing. He has seen them occur in a man who used the phone constantly.

Function of the Accessory Cavities of the Nose.

DR. J. M. INGERSOLL, Cleveland, said that the accessory sinuses of the nose in the lower animals are developed in connection with the olfactory portion of the nose. In animals which have an acute sense of smell, the olfactory (ethmoidal) turbinals exhibit a tremendously intricate development and the accessory sinuses are correspondingly more highly developed and all of them contain olfactory turbinal tissue. Their function is to conduct inspired air more directly over a large surface of the olfactory turbinals, which would not otherwise be exposed to air, except by diffusion, and thus the accessory sinuses increase the acuteness of the sense of smell. In those animals in which the sense of smell is not acute, the olfactory turbinals have degenerated and receded from the accessory cavities. The cavities are left with comparatively smooth walls, their openings into the nasal fossæ contract and their functional activity is lost. In man the accessory cavities are almost completely shut off from the nose, their functional activity ceases, and they remain as rudimentary structures.

Three cases of Laryngeal Neoplasm.

DR. C. W. RICHARDSON, Washington, reported one case of neoplasm in the larynx noted from six months to the ninth year of life, and now disappearing. The second was a multiple papilloma in an adult; and the third a laryngeal carcinoma, in which he had performed laryngectomy. The patient, who was 72 years old, died on the morning of the fifth day of collapse. In this case the growth seemed to be localized and the outlook seemed very promising, yet the outcome was not favorable. Complete laryngectomy does not offer a very favorable result in the aged. He believes that the operation devised by J. Solis-Cohen is indicated in these cases.

DR. F. E. MILLER, New York, thought that in cases of papilloma in children a continuous spray of Thiersch solution, four or five times daily, increasing its strength will improve the condition. He thinks all these cases finally come to tracheotomy and thyrotomy.

DR. H. W. LOEB, St. Louis, has seen several cases of carcinoma of the larynx which had been operated on. One patient is living. Another patient had been comfortable for a year. A second operation was performed and the patient died. Another patient was operated on two and and one-half years ago and has been well since. His trachea is stitched to his skin. The next patient was operated on and proved to be atypically tubercular. He died two weeks after operation. The next patient had a large carcinoma for which he had been treated five months. All structures were dissected from the larynx and the tracheal wound was attached to the neck wound, and one week later he had a slight hemorrhage. He had an embolism which probably originated in the jugular. The doctor thought it wise in considering carcinoma to look at the statistics of Szenziac. It seems that carcinoma remains intrinsic a long time and does not affect glands external to the larynx. If the patient can be brought through the operation without serious results, he has a fair chance for recovery.

Results Obtained From Operation for Chronic Purulent Otitis Media.

DR. EDWARD B. DENCH, New York, said that certain questions had arisen regarding the technic of the operation. First, the advisability of primary grafting; second, the advisability of secondary grafting at the end of five to ten days after the primary operation; third, the advisability of the introduction of grafts through the canal; and fourth, anomalous methods of healing after skin grafting. He thought grafting advisable at all times; convalescence is shortened if it is employed.

DR. NORVAL H. PIERCE, Chicago, thought the tests for change in audition ought to be carried out; first the whisper test, then low sounds, then bone conduction and lateralization, and then Renne test to see if the stapes is ankylosed. Then the condition of the auditory nerves should be ascertained. When no ankylosis of the stapes is found and there is no nerve involvement, audition has been improved. It is necessary to insist on the exact test being made before operation, then one can ascertain if the operation increases or decreases audition.

DR. W. C. PHILLIPS, New York, spoke of the fatalities attending the radical operation for chronic suppuration of the middle ear. He emphasized the fact that while the fatalities are few and they have no special connection with the disease, yet they do occur.

DR. KASPAR PISCHEL, San Francisco, remarked that the author has said the patients return complaining of the occurrence of suppuration. They think or say the operation did them no good. It seems to be the breakdown of the poorly nourished integument. He has devised a flap which furnishes a good skin and permits of the immediate closure of the wound. The original cut is made behind the lobe, and the skin from the posterior wound as far as the high line of the flap is turned in to cover the upper wall and the upper part of the posterior wall. The lower part is covered by the flap, and the ridge of the facial nerve is covered by skin flap. In order to make it heal the superficial layers are removed with a cataract knife. This is closed up and the upper part covered with healthy skin.

DR. E. B. DENCH said that he had exposed the facial nerve three-fourths of an inch and when it was picked up there was no response to mechanical stimulation, but two years later there was perfect control. Provided there is no division, there is not limit as to the time when the function may be restored.

(To be continued.)

CINCINNATI ACADEMY OF MEDICINE.

Regular Meeting, held June 11, 1906.

The President, DR. J. E. GREIWE, in the Chair.

Surgical Treatment of Indigestion.

DR. EARL HARLAN said that the term intestinal indigestion is a misnomer. It includes all those cases of indigestion in which the causative lesion is located within or along the large or small bowel. It is characterized by the following symptoms

and conditions: Sour stomach, periodical nausea and vomiting, headaches, nervousness, obstinate constipation or persistent diarrhea (the latter when not due to a specific germ), recurrent attacks of diarrhea and constipation with more or less peritoneal soreness or tenderness; persistent abdominal distress or discomfort dependent on the almost continual presence of gases or fecal deposits at some particular locality. He ascribes all of these conditions in the beginning to a lowered tone of the peritoneum, produced by various irregularities of diet and modes of living. The cause of this condition where it has become chronic, lasting for months and in some cases years, and where it resists medical treatment, he ascribes to pathological or mechanical conditions within the abdominal cavity, which produce a partial obstruction of the bowel, which in time leads on to the more grave and dangerous condition of acute obstruction. Among lesions which produce this condition of intestinal indigestion are dislocated kidney, prolapse of the anterior border of liver, acquired multiple diverticulitis with mesenteritis, adhesions of the omentum, or lymphatic rings of constriction, appendiceal irritations and congestions which produce symptoms simulating those of appendicitis (the latter usually produced by kidney dislocations), ulcer of the colon, concretions in the appendix, uterine retroversions and adhesions about the pelvic organs, and any pathological or mechanical condition which will partially obstruct the proper drainage of the bowel. In proof of his assertions he cited cases on which he has operated for divers conditions, the operation being necessitated by the development of acute conditions of obstruction, and which he has had the opportunity to trace or observe for several years prior to operation.

In the treatment of lesions of the first class he advocates ileocolic anastomosis or ileocolic anastomosis with resection of the colon in cancerous conditions. He cited various authors who have resected parts or nearly all of the colon, with an accompanying ileocolic anastomosis to prove that the colon is a digestive adjunct, whose services can be dispensed with when necessary. Ileosigmoidostomy after the method of Coffey, is the choice in these cases. In treating the second class of cases he advocates careful and painstaking methods of diagnosis in order that the obstructive lesions located outside the bowel, may be removed before the development of grave conditions. Kidney displacements should be corrected, the appendix removed in recurrent appendiceal irritations with slight appendiceal and cecal colic, and early operative procedure instituted in all of the above named mechanical obstructions, before the development of pathologic inflammatory processes of the bowel. He does not advocate the methods of treating obstinate colonic irritations by colostomy or appendicostomy, but prefers the internal anastomosis of the bowel. The principle which should obtain here is the same as that which obtains in the treatment of gastric ulcer by gastroenterostomy, e. g., the securing of rest and free drainage through the unobstructed lumen of the bowel.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns.]

Gastric Neurosis (Nervous Dyspepsia).

In considering the diagnosis of this form of gastric disturbance, M. Gross, in the *New York Medical Journal*, states that the subjective complaints of the patients are very capricious and changeable and anything but decisive in character. The complaints of hyperesthesia, which are in many instances not due to disturbances of secretion, the changeable appetite, constipation alternating with diarrhea, general feeling of depression, insomnia, and general tendency to fatigue, are the symptoms mostly given by these patients. The pain of which they complain is a diffuse one, and at times has no connection whatever with the digestion of food; at other times the food may be the cause of it. Vomiting may be associated with this condition, and is not infrequently attributed to a spasm of the pylorus. He bases the diagnosis of the disease on the history given, the jumping and uncertain character of the affection, together with the inconstancy of the secretion and motility of the stomach. In speaking of the therapeutics of this disease he states that one must constantly keep in mind the fact that he is dealing with patients whose imagination and will-power are easily influenced in undesirable directions. Consequently, it is necessary to resort to demonstrations which will convince the patient that the functions of the stomach are practically normal. This can be done only by a thorough and painstaking examination, with that degree of positiveness that will demand the confidence of the patient. In many instances it is necessary to remove patients to entirely new surroundings, away from their friends and former acquaintances, after which a slow and gradual progress will take place. In all cases patients should be forbidden to talk about their condition. The physician should lay down definite specified rules as to the mode of living and diet which should be followed, and it will make a much greater impression if these directions are given the patient in writing. In cases of extreme hyperesthesia, poultices may be applied with advantage, associated with warm hip baths. Insomnia can often be relieved by warm baths, followed by lukewarm douches or by cold friction before retiring. Other beneficial hydropathic measures are sponge baths and cold dressings. The condition of the intestine must be considered along with the disturbances of the stomach, and in this connection Gross speaks against any success following treatment by electricity. However, he recommends general massage as a good adjuvant. He condemns medicinal preparations as doing more harm than good, in the majority of cases. To relieve the nausea menthol valerianate, administered on sugar, is sometimes of value. Bismuth will often relieve the hyperesthesia, though occasionally it may be necessary to give small doses of cocain. [Cocain, however, must be used with great caution.] Of the other medicinal preparations he recommends arsenic, given subcutaneously, as one of the best preparations to relieve the depressed as well as the excited conditions in these individuals.

Medical Treatment of Gallstones.

In considering the medical treatment of gallstones, R. W. Wilcox, in an abstract in the *Boston Medical and Surgical Journal*, states that the treatment of cholelithiasis depends on the regulation of congestions and inflammations in the portal system, and associated organs, together with local antisepsis. He speaks in this connection as to the necessity of prohibiting the use of alcohol, the proper regulation of the diet, and exercise. Of medicinal preparations Wilcox prefers salicylic acid as a cholagogue, because of its biliary and intestinal antiseptic effect. Sodium glycocholate is another preparation of which he speaks as being a most satisfactory one; as in case of salicylic acid, the acid sodium oleate is excreted by the epithelium of the bile ducts, which assists in disinfection. He recommends the following combination as very efficient in the treatment of gallstone disease:

℞. Acidi salicylici,
Acidi sodii oleatis, ää.....grs. iss |09
Phenolphthalein .....gr. i |06
Menthol .....gr. ¼ |018

M. Ft. pilulæ, No. iv to viii. Sig.: One pill once or twice daily, followed by a full glass of water.

The phenolphthalein, according to the author, is a safe and prompt laxative, as well as a very efficient antiseptic to the alimentary tract. The conclusions of Wilcox are that gallstone disease is not purely a disease due to a foreign body, but that the primary trouble is in the liver, which is not properly functionating. The actual removal of the stones does not cure the patient, as has been demonstrated by surgery. Consequently, the commencement of this treatment consists in removing the cause of the disease, which is a physician's duty, as it is the congestions and inflammations in the region of the portal system that require treatment, together with the bile ducts and gall bladder, which are in a catarrhal state, and consequently tend to the formation of faulty bile.

Pertussis.

The following combinations are recommended by Yeo in the treatment of pertussis:

℞ Pulv. bellad. rad. ..... gr. iss | 09
Quin. sulphatis ..... gr. viii | 50
Sacchari albi ..... ʒ ss | 2
M. Ft. chart. No. x. Sig.: One powder three times a day.

As a spray the following may be used for children over six years of age:

℞ Cocainæ hydrochlor ..... gr. x | 65
Potassii chloratis ..... gr. iii | 20
Aquæ grad ..... ʒ iss | 45
M. Sig.: To be sprayed into the throat twice a day.

As an insufflation, introducing it into the larynx by means of a glass tube curved at one end, the following is of value as an antiseptic and germicide:

℞ Pulv. benzoini.
Bismuthi salicylatis, ää ..... gr. lxxv | 5
Quin. sulphatis ..... gr. xv | 1
M. Ft. pulvis. Sig.: A few grains to be used as an insufflation into the larynx once daily.

Dr. Norman Bridge recommends the following combination for local application in a similar manner:

℞ Quininæ hydrochloridi ..... gr. x-xx .65 | 30
Sodii bicarb. ..... gr. xx | 1 30
Pulv. acaciæ ..... ℥iii | 12
M. Ft. pulvis. Sig.: A few grains to be insufflated into the throat two or three times a day.

Internally one of the following combinations may be employed:

℞ Chloralis hydratis ..... gr. xv-xlv | 1-3
Potassii bromidi ..... gr. lxxv | 5
Syrupi aurantii ..... ʒ iii | 12
Aquæ distil ..... ℥ii | 60
M. Ft. mistura. Sig.: One teaspoonful in water every two hours. The dose must be varied according to the age of the patient.

Or,

℞ Sodii benzoatis ..... gr. lxxv | 5
Syr. aurantii ..... ℥i | 30
Aquæ q. s. ad ..... ℥ iv | 120
M. Sig.: From one teaspoonful to a tablespoonful every hour in water, depending on the age of the patient.

Or,

℞ Acidi carbolici ..... gr. xv | 1
Spiritus vini rectif. ..... m. xv | 1
Tinct. iodi ..... m. x | 65
Tinct. belladonnæ ..... m. xxx | 2
Syr. simplicis q. s. ad ..... ʒ ii | 60
M. Ft. mistura. Sig.: One teaspoonful every two hours, between one and two years of age; half of the quantity diluted with water for infants under one year of age.

Or,

℞ Extracti cannabis ind ..... gr. xii | 75
Extracti belladonnæ ..... gr. vi | 40
Spts. vini rectif.
Glycerini ää ..... ʒ iss | 6
Aquæ q. s. ad ..... ʒ iii | 90
M. Ft. mistura. Sig.: One-half teaspoonful to two teaspoonfuls for a dose, according to the age, night and morning. (Not to be given to children under eight months old).

When there is a profuse secretion from the air passages the following combination is of value:

℞ Extracti belladonnæ ..... gr. viii | 50
Extracti conii ..... gr. iii | 20
Acidi tannici ..... gr. v | 30
Infusi senegæ ..... ʒ ii | 60
Aquæ fenículi ..... ʒ i | 30
Syr. aurantii flor. q. s. ad ..... ʒ iv | 120
M. Ft. mistura. Sig.: Two teaspoonfuls every two hours in water.

As a syrup the following may be given:

℞ Extracti belladonnæ ..... gr. iii | 20
Syr. aurantii ..... ʒ ii | 60
M. Ft. mistura. Sig.: One teaspoonful night and morning.

As a liniment to the chest the following combination is recommended:

℞ Olei eucalypti
Linimenti camphoræ, ää ..... ʒ ii | 60
Olei cajuputi ..... ʒ ss | 15
Olei menth. pip ..... ʒ ii | 8
M. Ft. linimentum. Sig.: To be applied locally to the chest. In older individuals an antiseptic gargle is of value. For this purpose the following combination containing lactic acid is recommended:

℞ Acidi lactici ..... ʒ ii | 8
Syr. aurantii ..... ʒ i | 30
Aquæ q. s. ad ..... ʒ viii | 240
M. Sig.: To be used as a gargle two or three times a day.

Inhalations must not be overlooked in the treatment of whooping cough. They may consist of vapors of creosote, some tar preparation, or turpentine, which tend to lessen the severity and frequency of the paroxysms. Some authorities maintain that the alkalinity of the body fluids must be preserved, and consequently they recommend sodium bicarbonate in moderate doses, or the alkaline mineral waters, together with milk, as the chief article of diet.

Medicolegal

Non-Expert Evidence Where Insanity Is Defense to Crime.

The Supreme Court of Nebraska holds, in Reed vs. State, that insanity can not be proved by hearsay or reputation, and it is proper to exclude such evidence. The rule permitting non-expert witnesses to testify as to the sanity or insanity of one whose legal accountability is the sole matter in issue does not allow such witnesses to testify that at a certain date such party knew the difference between right and wrong of the act at that time committed by him. The opinions of non-expert witnesses on the question of the insanity of one charged with a criminal offense are entitled to little or no regard, unless supported by good reasons founded on facts which warrant them. From such opinions and the facts stated to support them, it is the province of the jury to draw their conclusions as to the sanity or insanity of the defendant.

Duty as to Providing Nurses for Quarantined Persons.

The Supreme Court of Michigan says, in the case of Rohn vs. Osmun and others, that Section 4424 of the Compiled Laws of that state, as amended in 1903, reads, in part as follows: "When any person coming from outside the county or residing in any township, city or village within this state, shall be infected or shall lately before have been infected with a dangerous, communicable disease, the board of health of the township, city or village where such person may be shall make effectual provisions in the manner in which they shall judge best for the safety of the inhabitants and they may remove such sick or infected to a separate house if it can be done without danger to his health, and shall provide nurses and other assistance and necessaries, which shall be at the charge of the person himself, his parents or other persons who may be liable for his support if able." If the statute be literally construed, it might be said that the duty to provide a nurse in every case in which a person is quarantined is not only positive, but that more than one nurse must be employed as the phrase is used. This construction would be so unreasonable as to suggest that it should not be adopted except on necessity. The court thinks that the employment of the phrase "nurses" in the statute indicates a legislative intent that the board should, in the general exercise of its powers, under this section, employ nurses, and implies a discretion as to number and occasion. It is to be noted that the power to isolate is not limited to those who are at the time infected, but includes such as shall lately before have been infected. It is hardly conceivable that the legislative intent was that such convalescents should be supplied with nurses. The reasonable construction is that which gives authority to the board to decide on the necessity and to employ such nurses as they shall deem necessary. The duty thus reposed in the board is a quasi judicial power. The neglect of such a duty does not entitle a party injured by such neglect to an action for damages, so long as the officer is acting within his jurisdiction and is not guilty of an invasion of private rights, and is not acting from corrupt motives.

Good and Bad Bases for Expert Testimony.

The Supreme Court of Kansas says of a physician who was a witness in Federal Betterment Co. vs. Reeves, a personal injury case brought by the latter party, that the witness was an expert, who, under the rules of evidence, might give his

opinions based either on facts testified to by others, or on hypothetical questions put to him, or on an examination of the patient; but he could not testify to conclusions arrived at from the history of the case given him by the patient or others. Such testimony would be as completely within the rule against hearsay evidence as if sworn to by one not an expert. Nor can a physician give his opinion based partially on what he has been told of the case, and partially on what information he obtained by an examination of the patient. A physician may testify to the condition of the patient as he found him, whether suffering from pain, and to utterances or exclamations of pain, and he may also give the patient's statement as to the location of the pain causing such exclamations; and this, because it can be said to be a part of his examination.

Non-Mailable Books.

The United States Circuit Court of Appeals, Eighth Circuit, holds, in Burton vs. United States, that where the acts described and the ideas conveyed in a book are calculated to deprave the morals of the reader by exciting sensual desires and libidinous thoughts, the book is obscene, under Section 3893 of the Revised Statutes of the United States declaring every obscene book, etc., non-mailable; and it is immaterial that the information conveyed is accurate and scientific and tends to prevent disease and other ills resulting from existing ignorance on the topics discussed, that as a whole the book is calculated to be of value to the medical practitioner and to men and women in the marriage relation, that its publication was approved by several physicians, and that some portions of it are extracts from standard medical works. The inquiry under this section is whether or not the circular or book charged to have been obscene was in fact of that character, and if it was, and the defendant knew its contents at the time of the act charged, it is immaterial that he himself did not regard it as of that character. Everyone who uses the mail for distributing circulars or advertising books must take notice of what is obscene. Whether or not a book is obscene, under this section, is to be determined on a consideration of such parts of it as are claimed to be of that character, together with so much of the context as may be necessary to a proper understanding of them, but not necessarily on an inspection of the entire book and with reference to all of its contents.

Personal Malpractice Liability of "Company" Officers.

The United States Circuit Court of Appeals, Third Circuit, says that the defendants in the malpractice case of Mandeville vs. Courtright and others were stockholders and officers of a company incorporated in the state of New Jersey and caused to be conducted in the state of Pennsylvania, in the name of the corporation, the business of dentistry, which the corporation had no charter right to carry on there and which it was expressly forbidden to carry on in Pennsylvania by the law of the latter state. The plaintiff, in ignorance of the existence of such a corporation, and supposing that she was in the hands of licensed dentists, submitted herself to an authorized employé of the establishment, who operated on her mouth so negligently and carelessly as to fracture the jawbone and cause her serious injury. Such being the case, could the defendants escape personal liability to the plaintiff by setting up the charter of the company? The court thinks not. To all intents and purposes, the defendants acted without any charter at all, for the New Jersey charter gives no warrant to the corporation to practice dentistry in Pennsylvania, and the Pennsylvania statute prohibited the corporation to practice dentistry in that state. The defendants were bound to know that their corporation was forbidden by law to practice dentistry in Pennsylvania, and it seems to the court that by the use of the name of the corporation they could not avoid personal liability for what they did. The defendants were not innocent non-assenting stockholders, but they were concerned knowingly and actively in the conduct of an illegal business carried on in the name of the corporation. What was being carried on at their establishment, the practice of dentistry, the corporation could not conduct. This the defendants were bound to know. What, therefore, the corporation could not do, they could not, under the guise of its charter, carry on. And hence they must be conclusively held to have done themselves what was actually done. In a word, these defendants, in view of their knowledge and active participation, could not be heard to say that what they were causing to be done was not being done by them, but by their corporation, when that corporation could not conduct the business and they knew that it could not. Moreover, the person who operated on the plaintiff's jaw was unlicensed as a dentist, seemed to have lacked experience, knowledge and skill, and in extracting from her jaw what he supposed to be a root or piece of process, extracted what was, in fact, a portion of her jawbone, and the court thinks that the facts disclosed fully justified the jury in awarding to the plaintiff exemplary damages. Wherefore the court, rendering the judgment which it says that the court below ought to have rendered, enters a judgment in favor of the plaintiff and against the defendants on the verdict of the jury in her favor for $4,000, with interest from the date of the verdict, and with costs in both courts.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

CORRECTION: The title of Dr. Geo. A. Moleen's article, paragraph 53, p. 73, THE JOURNAL, July 7, 1906, should read "Subcortical Cerebral Gumma Accurately Localized in the Comatose State; Death; Autopsy."

Medical Record, New York.
July 7.

1 *Fresh Air Treatment of Acute Respiratory Diseases, with Especial Reference to Pneumonia. J. M. Anders, Philadelphia.
2 Independent Medical Journalism a Necessity for the Profession. K. W. Millican, St. Louis.
3 Infections by the Bacterium Coli Commune, with Particular Reference to the Urinary Tract. C. A. McWilliams, New York.
4 *Albuminuria; Recognition of the Albumin Bodies in Urine. T. W. Hastings, New York.

1. **Fresh Air Treatment of Pneumonia.**—Anders discusses the fresh air treatment of acute respiratory diseases, especially pneumonia. He says that to be effective fresh, pure air must be constantly applied, without regard to the seasons of the year or the periods of the day, although a certain degree of protection can and should be afforded during climatic extremes and under different conditions of disease. It should be well understood also that to be effective the open-air treatment must be carried out in connection with a rigid system of living under the personal supervision of a competent physician. Cold stimulates the respiratory function, and, as an immediate consequence, more oxygen is absorbed. With pneumonia there is demanded an atmosphere containing the full complement of oxygen, because a large proportion of the air cells are rendered functionless. Anders does not advocate the fresh-air treatment to the exclusion of other accepted methods and means in the management of cases of pneumonia, but as a favorable adjunct to what is already known on the subject. Personal experience, he says, justifies the statement and belief that pneumonia patients are in no danger of contracting a cold from perflation of the sick room with fresh air, and that the mere breathing of fresh air or the flowing of cool air over the face while the patient is confined to bed is practically unattended with risk in this respect. In one severe case of lobar pneumonia the nurses in attendance were obliged to wear wraps.

The fresh-air treatment should not be undertaken without due deliberation on the peculiarities presented by the individual case. Thus, in certain forms of secondary forms of pneumonia, it might be inadvisable, as when pneumonia supervenes in the course of advanced Bright's disease or in persons having a highly sensitive nervous organization, and the like. In general, however, this measure is contraindicated in exceptional instances only; hence there is no difficulty in selecting suitable cases for its employment. Among the particularly beneficial effects observed from the constant breathing of fresh cool or cold air are a better general condition and increased strength, and improved appetite and digestion, refreshing

sleep, lessened severity of the cough, diminished breathing, fever and pulse rate, in short, a less marked toxemia, than in cases treated by the more usual methods.

4. **Recognition of Albumin Bodies in Urine.**—Hastings says that many of the albumin bodies which theoretically might occur in urine may be excluded from consideration for various reasons: serum, albumin, nucleo-albumin, serum globulin and Bence-Jones' albumose to be considered. For purposes of excluding false reactions due to bacterial disintegration, the urine should be examined within six hours after being voided unless the reaction is massive. A most reliable test for serum albumin in urine is that of salting the urine with a saturated solution of sodium chlorid, acidulating with from 5 to 10 drops of 50 per cent. acetic acid, and heating to boiling the upper one-third of the tube. This throws down all traces of serum albumin and prevents a nucleo-albumin reaction.

New York Medical Journal.

July 7.

5 Fighting Plague in Japan. S. Kitasato, Tokyo, Japan.
6 *Operative Treatment of Infantile Paralysis, with Especial Reference to Neuroplasty. R. T. Taylor, Baltimore.
7 Gonococcic Infection in Women. J. T. Johnson, Washington, D. C.
8 *A Unique Case of Automatic or Unintentional Suicide in an Epileptic. W. P. Spratling, Sonyea, N. Y.
9 Early Symptoms of Tuberculosis and How They May be Developed when the Applicant Attempts to Conceal Them. W. Brinton, Philadelphia.
10 Features of Uterine Sepsis. S. Marx, New York.
11 Treatment of Tabes in the Preataxic Stage. A. D. Young, Oklahoma City, Okla.
12 Congenital Cystic Kidney; Rupture of a Cyst; Operation; Recovery. C. E. Prior and F. W. Gay, Malden, Mass.

6. **Operative Treatment of Infantile Paralysis.**—Taylor advocates the early use of braces, and, in fact, the use of braces in all cases of infantile paralysis in which the lost balance of power or the effect of gravity may lead to distortion, with or without surgical intervention. Neuroplasty, he thinks, can do no harm if conservatively done. If good coaptation is obtained positive results may be expected after three months. These results improve progressively. In two cases reported by Taylor, neuroplasty was performed with comparatively good results. In one case there was a distinct gain in power after 92 days; in this case, however, the paralysis had existed only a few years. In the other case the disease was of ten years' standing. One hundred and twenty days after the operation the patient was able to abduct slightly and flex the foot dorsally and to extend the toes.

8. **Unintentional Suicide in an Epileptic.**—The case reported by Spratling is out of the ordinary for the reason that suicide was committed while the patient was in an automatic or unconscious state following an epileptic fit. He drank the contents of an ink bottle of about two ounces capacity. The ink was of the kind used by architects on mechanical drawings. Its odor indicated the presence of phenol and aniline oil. It also contained nitrobenzol. The autopsy showed the esophagus and stomach deep black in color, shrivelled and corrugated.

Boston Medical and Surgical Journal.

July 5.

13 *Principles of Feeding in Typhoid and in Other Fevers. F. P. Kinnicutt, New York.
14 The Heart in the Puerperium. H. Jackson, Boston.
15 *Tuberculin in Treatment of Pulmonary Tuberculosis. W. A. Griffin, Sharon, Mass.

13. **Feeding in Typhoid.**—Kinnicutt collected and analyzed a large number of typhoid statistics drawn chiefly from hospital services. These show that intestinal accidents, hemorrhage and perforation are rather less frequent under a mixed, soft and solid diet, than under restricted fluid diet, consisting mainly of milk. As a result of this study Kinnicutt makes a plea for a different dietetic management of typhoid than that which almost universally prevails, a management adapted to the individual case and based on the recognition that: (1) While the digestive function in many cases of the disease is unquestionably seriously impaired, frequently the impairment is not a material one; (2) a clean tongue, a true appetite, hunger, should be accepted as guides for the cautious employment of a more generous diet; (3) the individual, rather than the disease, is to be considered and treated.

15. **Tuberculin Treatment of Tuberculosis.**—Griffin reports three cases of pulmonary tuberculosis, which he says would not be considered particularly favorable for the tuberculin treatment, since they were under observation for some months before treatment was instituted. The treatment was of great value in two cases and of no harm in the third. The first patient received 27 injections during a period of five months, the injections varying in amount from .0005 gm. to .6 gm. The patient's condition improved rapidly, and for more than a month before discharge the cough and expectoration were *nil*, while the signs in the chest were likewise much improved. The second patient received 58 injections during a period of seven and one-half months. She, too, improved until at discharge there had been no cough or expectoration for some time, and the signs in the chest had cleared up to a marked degree. When last heard from both these patients were in good health. The third patient received in all 51 injections, the last one being .7 gm. The general condition improved somewhat, but the cough and expectoration remained about the same, while the bacilli persisted in the sputum.

St. Louis Medical Review.

June 30.

16 Etiology, Pathogenesis and Treatment of Vesical Calculus in Women. C. G. Cumston, Boston.
17 *Melaniferous Leucocytes in the Diagnosis of Malaria. J. R. Clemens, St. Louis.

17. **Melaniferous Leucocytes in Malaria.**—Clemens thinks it strange that in districts where the manifestations of malaria are protean in character and of endless variety there is ignored a means of diagnosis employed extensively elsewhere and advocated by Manson. This is the finding of pigmented leucocytes in the peripheral circulation of those suffering from malaria. In children especially, in whom usually the paroxysms are not very marked, the search for plasmodia must necessarily often prove futile, whereas the pigmented leucocytes are always present. The color of the pigment lends itself to a differential diagnosis. Light yellowish or red pigment denotes a simple type of malarial infection, while jet black pigment is indicative of the presence of the æstivo-autumnal parasite. The amount of pigment present in the white corpuscles is also helpful in the interpretation of cases. When the pigment granules in the leucocytes are few in number to the leucocyte we are necessarily dealing with a case of recent infection. On the other hand, in long standing and chronic cases, the leucocytes are crowded with pigment. The only possibility of mistake lies in regard to the pigmented leucocytes found in the subjects of melanotic sarcoma—a differential point which may safely be ignored.

Lancet-Clinic, Cincinnati.

July 7.

18 Association of Hysteria with Organic Diseases of the Central Nervous System. H. H. Hoppe, Cincinnati.
19 Traumatism of the Ureter and Pelvis of the Kidney. R. B. Hall, Cincinnati.

American Journal of Obstetrics and Diseases of Women and Children.

July.

20 *Treatment of the Toxemia of Pregnancy. G. L. Brodhead, New York.
21 *New Operation for Anteflexion of the Cervix. W. H. Baker, Boston.
22 Puerperal Sepsis. F. H. Jackson, Houlton, Maine.
23 Pregnancy, with Rupture of Bicornuate Uterus—Operation and Recovery. I. L. Watkins, Montgomery, Ala.
24 *Value of Blood Examinations in Surgical Diagnosis. D. S. D. Jessup, New York.
25 Tubo-Abdominal Pregnancy at Term. J. Aspell, New York.
26 Statistics of One Thousand Cases of Labor. I. L. Hill, New York.
27 Heredity in Gynecology. G. Sneguireff, Moscow.
28 Judgment and Technic During Labor. E. Sothoron, Washington, D. C.
29 Classifications of the Non-Specific Surgical Fevers. W. M. Ford, New York.
30 Menstruation—Its Significance, with Particular Reference to Recent Literature. C. Hill, Chicago.

20. **Treatment of Toxemia of Pregnancy.**—Brodhead advises the following treatment: During the eclamptic seizure administer chloroform and oxygen if possible. Prevent the patient from biting her tongue and from injuring herself by blows or falls. If the pulse is full and strong, with tension, give the Squibb fluid extract of veratrum viride, minims x-xx hypo-

dermically, and repeat in doses of minim v every half hour until the pulse is reduced to 60. If the Norwood's tincture is used, give minims x-xx and repeat in doses of minim x every half hour until the pulse is reduced to 60. In case of collapse, use whiskey, morphin and atropin hypodermically. If the pulse is weak and feeble, rely chiefly on chloral and bromids by rectum in doses of from one-half to one dram of each. When the pulse is strong use veratrum as indicated, combined with chloral by rectum. If the patient is unconscious, move the bowels by croton oil, minims i-ii, given with olive oil, one dram, on the back of the tongue. If this is not sufficient, give a high enema of sulphate of magnesia and castor oil, of each one ounce. If the patient is conscious, give magnesium sulphate two drams, every fifteen minutes, until one ounce has been given. Then, if necessary, use the high enema of magnesium sulphate and castor oil. A hot pack should then be given. The colon should be irrigated with several gallons of saline solution and several quarts left to be absorbed. Intravenous infusion should be reserved for the very severe cases.

Venesection, when labor has not yet begun, may be used to advantage in robust patients with a full pulse, from 12 to 16 ounces of blood being removed. If, however, the patient is about to be delivered, a moderate blood loss can be allowed in the third stage, and, if necessary, venesection can be performed after delivery. To decrease arterial tension, and as a heart stimulant, diuretic and diaphoretic, nitroglycerin is also of great value, while caffein and strophanthus are second only to nitroglycerin. If labor has not commenced, a modified Champetier de Ribes bag should be introduced and the cervix should be softened and dilated by the use of these bags. When the cervix has been well dilated, complete dilatation by the hand, and delivery by the forceps or version are indicated. If labor has already begun, but the cervix is long and rigid, use the bags for softening and dilatation. If the cervix is soft and dilatable, complete dilatation manually and delivery by forceps should be done. If the cervix can not be dilated by the ordinary methods, Dührssen's incision or Cesarean section should be advised, but unless the operator feels perfectly able to perform these operations, it is better to rely on medical treatment alone.

21. **New Operation for Anteflexion of Cervix.**—The details of Baker's operation are as follows: With the patient in the Sim's position, the cervix is thoroughly dilated, if necessary. The posterior lip of the cervix is then seized with a bullet forceps and drawn as near as possible to the vaginal opening. The position of the wedge is then estimated as nearly as possible opposite the point of flexure, and tenacula are inserted at each apex of the wedge. The amount of tissue to be removed in the wedge is a question of mechanical judgment, depending on the amount of anteflexion present before the patient is etherized. The removal of the wedge offers some technical difficulties. These may be overcome either by the use of a right-angle knife or by the old-fashioned Emmett's scissors, which are sharply bent toward their point. Usually, however, the ordinary scalpel is sufficient, by drawing sharply down on the base of the wedge, either by tenaculum or double hooks. The position of the canal should at all times be kept in mind, and it is best to keep a sound inserted in the uterus. It is not always necessary to cut into the canal, but if a better position for the cervix, or better coaptation of the edges, can be obtained, there should be no hesitation in doing so. After sufficient tissue has been removed, so that the cervix can be reduced to its proper position, the wound should be closed by silver wire sutures twisted. The reason for using silver is for better coaptation, in order to secure primary union with greater surety. From a purely mechanical standpoint, the operations have all been successful, the position of the cervix being restored permanently to its normal axis, and in all but one case the symptoms of dysmenorrhea have been greatly relieved. No report on sterility can be made, as the operations have in all cases been done on unmarried women.

24. **Blood Examinations in Surgical Diagnosis.**—Jessup summarizes his paper as follows: 1. Knowledge of the absolute and relative leucocytosis in inflammatory conditions is of great value to the surgeon, but only when taken in conjunction with the history and clinical features. The man who operates on the blood count alone runs the risk of opening an abdomen for intestinal indigestion when the cause of the leucocytosis is a pneumonia. 2. In the absence of an absolute leucocytosis a relative increase of the polynuclears coupled with other signs is indicative of a purulent exudate. 3. The absolute leucocytosis is of value in prognosis, the higher counts being seen in cases in which there is good body resistance. Low counts with a high percentage of polynuclears and evidence of marked sepsis give a poor prognosis. 4. A differential count should accompany every total count for its proper interpretation; but it is not safe or wise at present to fix any definite percentage of polynuclears as the point at which pus is certain to be found. 5. In certain bacterial infections, e. g., with typhoid and colon bacilli, the polynuclear percentage may be below normal, although pus is present, and this must be borne in mind in interpreting the leucocyte counts.

Washington Medical Annals.

July.

31 Arteriosclerosis. J. B. Nichols, Washington, D. C.
32 *Case of Abdominal Pregnancy: Operation. I. S. Stone, Washington, D. C.
33 Three Cases of Tuberculosis. D. S. Lamb, Washington, D. C.
34 Two Cases of Cholecystectomy. I. S. Stone, Washington, D. C.
35 Case of Cholecystectomy for Gallstone. I. S. Stone, Washington, D. C.
36 Vaginal Versus the Abdominal Route in Pelvic Surgery in Women. J. W. Bovée, Washington, D. C.
37 *Case of Resection of Ileum. I. S. Stone, Washington, D. C.
38 *Appendicitis as a Cause of Tetany. G. T. Vaughan, Washington, D. C.
39 *Two Cases of Resection of Intestine with Recovery of Patients; Also, a Case of Rupture of the Intestine. G. T. Vaughan, Washington, D. C.
40 *Case of Fatal Hemorrhage from Perforation of Intestine by a Gallstone. A. M. Ray and I. S. Stone, Washington, D. C.

32. **Abdominal Pregnancy.**—Stone reports a case of abdominal pregnancy that primarily was tubal, and which by either tubal rupture or abortion was permitted to escape intact, perhaps first into the broad ligament, then out of its bed there and continuing its own life, avoiding necrosis by acquiring new sources of blood supply, and at the same time continuing the life of the fetus and fetal membranes until past the time of normal gestation.

37. **Resection of Ileum.**—Stone reports a case of resection of the ileum for stenosis associated with a large enterolith. Five inches of bowel were removed. The enterolith weighed 15 grams.

38. **Appendicitis as a Cause of Tetany.**—Vaughan's patient, a girl 11 years of age, for two years had suffered from recurrent attacks of appendicitis and in each attack she had had tetany, the seizures consisting of tonic spasms of two to three minutes' duration, affecting the muscles of the face, extremities and body. The appendix was removed and there has since been no attack of tetany.

39. **Resection of Intestine.**—The first case reported by Vaughan was one of carcinoma of the mesentery occurring in a woman 63 years old. Six feet and seven inches of intestine, including small intestine, cecum, ascending and one-half of the transverse colon were removed and a side-to-side union made with sutures. The patient made a good recovery, but was troubled with diarrhea, and now, about six months later, has to be careful in her diet to prevent diarrhea. The second case was one of gunshot wound of the intestine and bladder, in a man, 23 years old. A laparotomy was done about four hours after the injury. There were ten holes in the small intestine and two in the bladder. Six holes in the intestine were sutured and 2 inches of bowel, containing the remaining four holes, were resected and the ends united with sutures. One hole in the bladder was sutured, but the other was so deep in the pelvis that it could not be reached. Rather than split the bladder open and suture the bullet hole on the inside, it was decided to leave it closed and to depend on permanent catheterization to prevent infection. The abdomen was closed and a rubber tube left in for drainage. A soft catheter was introduced into the bladder through the urethra and fixed. The catheter was kept in place three weeks, only removing it every two or three days for cleansing. The patient made a good recovery.

40. **Perforation of Intestine by a Gallstone.**—In the case reported by Ray and Stone a communication was found between the gall bladder and duodenum large enough to admit the whole index finger. This opening was located about three inches below the pylorus. A large gallstone was found at this point which had not yet escaped into the bowel. There also existed a communication between the gall bladder and along behind the omentum into the transverse colon at the hepatic flexure. This perforation was oval in shape and admitted the end of the index finger.

Ophthalmic Record, Chicago.
June.

41 *A New Eye Symptom in Exophthalmic Goiter. H. Gifford, Omaha, Neb.
42 Use of the Electro-Magnet and X-Ray in Removing Foreign Bodies from the Eye. A. R. Baker, Cleveland, Ohio.
43 *An Intraocular Irrigator. A. Greenwood, Boston.
44 Case of Hypertropia. J. E. Colburn, Chicago.
45 Case of Acromegalia, with Interesting Eye Symptoms. E. H. Porter, Tiffin, Ohio.
46 Ocular Signs and Complications of Accessory Sinus Disease. J. Green, Jr., St. Louis.
47 *An Unusual Case of Methyl Alcohol Poisoning. H. Gifford, Omaha, Neb.

41. **New Symptom in Exophthalmic Goiter.**—The symptom referred to by Gifford is the difficulty encountered in trying to evert the upper lids of some patients affected with exophthalmic goiter. Eight cases are reported in which the upper lid could be turned only with great difficulty and then at the expense of so great a strain on the tarsal conjunctiva that the latter was entirely blanched in the center by the pressure. Excluding the exophthalmos as a cause of this symptom, Gifford thinks it most unreasonable to assume that it is due to a spasm or rather an unnatural irritability of one or both of the levators of the upper lid. So far as the symptoms go they might be caused by either one or both of the levators, but in view of the close association between the striated levator and the recti muscles, none of which seem to be affected, it seems more probable that the affected muscle is the non-striated levator of Müller which is innervated by the sympathetic nerve.

43. **Intraocular Irrigator.**—This apparatus was devised by Greenwood with the object of combining lightness and ease of manipulation with the absolute assurance that the return flow of irrigating solution from the anterior chamber should be as free as possible. To insure lightness the metal tube through which the rubber feed tube passes is made very thin, light and only about the size of an ordinary round pencil. About half an inch from one end a crescent-shaped segment is removed to allow the finger tip completely to compress the rubber tube at that point and thus to control the flow. The free return of fluid from the anterior chamber is insured by the little metal rod extending across the concavity into the anterior chamber, or even into the lower part of the posterior chamber; the rod serves to elevate the corneal flap and thus to permit a free return of the débris-laden fluid. After the expulsion of a lens Greenwood never makes pressure on the cornea to assist in the removal of cortical débris, but irrigates for the removal of such débris. Since using this irrigator in this way for over two years he has not had a single case of loss of vitreous. The whole apparatus may be boiled and thus thoroughly sterilized.

47. **Unusual Case of Methyl Alcohol Poisoning.**—Two years ago, while working intermittently at painting, Gifford's patient spent three or four hours in a room, 16x14x8, the woodwork of which he decorated, first, with a stain which he mixed himself in the room, using wood alcohol freely as its main component, then using a shellac mixed with wood alcohol. He purposely closed the doors and windows extra tight to keep out dust. He finished about 4 p. m and 6 p. m. of the same afternoon he was absolutely blind. He could not see a ray of light. He was not nauseated nor ill in any other way. After a week of total blindness, perception of light began to return and improved so that after two or three weeks more he could read coarse print with a strong magnifying glass. Then a change for the worse set in gradually and continued until, after six months, he was practically blind again. He could see light, but for some weeks was entirely unable to guide himself in the brightest daylight. Then another change for the better began. Very gradually his sight improved, and in the course of a year reached the point at about which he has since remained. He now can see the sidewalks so as to find his way about town quite readily. The treatment consisted mainly in hot eye baths and moderate doses of potassium iodid.

New Orleans Medical and Surgical Journal.
July.

48 *Mechanical Treatment of Fracture of the Patella. J. D. Bloom, New Orleans.
49 Studies of Yellow Fever. J. B. Guthrie, New Orleans.
50 Case of Multiple Urethral Stricture with Complications. C. W. Allen, New Orleans.
51 Stovain in Spinal Anesthesia. V. Maes and S. Logan, New Orleans.
52 Bier's Vacuum Hyperemia in the Treatment of Carbuncle. P. McIlhenny, New Orleans.
53 Fracture of the Superior Maxilla Successfully Treated by the Use of the Interdental Splint. A. G. Friedrichs, New Orleans.
54 Case of Acute Endomastoiditis, with Thrombosis of the Lateral Sinus. H. Dupuy, New Orleans.
55 Diphtheria of the Conjunctiva in the Far South. H. D. Bruns, New Orleans.
56 Osmic Acid Injection for Trifacial Neuralgia. A. Danna, New Orleans.

48. **Treatment of Fractures of Patella.**—A method of mechanical treatment of fracture of the patella that has proved successful in the hands of Bloom is that based on a hyperextension of the limb and coaptation of the fragments. The splint used for this purpose is of a V-shape with inversion at its angle-shaped site, its upper flange attached to a collar for encircling the upper thigh, the lower flange resting on a triangular base for support and to accentuate the extension. A receptacle for the calf and heel is placed on this. Abrasion for detachment of any possible fringe adhesion to the fragments is first done. Hyperextension by plaster strips is made in the application of the splint, and this is further reinforced by bandages on either side of the joint to strengthen and to confirm its position. The coapting effect of imbricated strips one-fourth of an inch in width secures more firmly the apposition and adds a fixity that contributes an immobilizing influence to the fractured bone. The splint as applied requires careful watchfulness to the calf and heel. It is well to remove the leg bandage at least once a week to observe for any pressure-necrosis that might occur from insufficient padding or sharpened pressure. The re-application of the bandage, both to the thigh and leg, also insures a more perfect result in the union.

The Journal of the Minnesota State Medical Association and the Northwestern Lancet, Minneapolis.
July 1.

57 *Treatment of Burns and Skin Grafting. H. Sneve, St. Paul.
58 Diagnosis and Treatment of Chronic Myocarditis. J. W. Bell, Minneapolis.
59 *Treatment of Burns. C. T. Granger, Rochester, Minn.
59½ Two Splinters of Steel Removed from the Interior of the Eye with the Magnet. W. R. Murray, Minneapolis.
60 Disease of the Pancreas. J. A. Lyng, Minneapolis.

57. This is practically the same paper which was published in THE JOURNAL, July 1, 1905.

59. **Treatment of Burns.**—Granger cuts a few pieces of gauze as large as are necessary to cover the burned area. The gauze is then spread with a thick layer of equal parts of lanolin and oxid of zinc ointment. The ointment is then covered with the waxed paper sold by instrument dealers. The gauze is backed up by a thin layer of absorbent cotton, and the dressing is applied with the waxed paper surface in contact with the burn. The whole is covered with a roller bandage. Patients affirm that this dressing has a remarkably cool and easy effect, which is kept up continuously. One of the advantages which this dressing affords is the ease with which it may be removed without harm to the granulating tissue.

Annals of Gynecology and Pediatry, Boston.
June.

60½ Education of the Dullard in the Public School. J. P. Haney, New York.
61 *Management of Constipation in Infancy. T. S. Southworth, New York.
61½ *Case of Sterility Due to Chronic Appendicitis and Hydrosalpinx. J. V. Young, New York.

61. Management of Constipation in Infancy.—Southworth states that constipation in the exclusively breast-fed infant presents more difficulties than that in the bottle-fed, because the composition of the food is rather less readily modified. The indications in these cases are to try to increase the flow of milk. With the possible exception of milk drinking, nothing has proved so efficient a milk-maker in Southworth's experience as well-cooked and salted corn-meal gruel. One quart of moderately thin corn-gruel should be drunk each day, plain or mixed with an equal quantity of milk. If well borne, one or even two teaspoonfuls of sweet gravity cream may be given before each nursing, and will be immediately diluted by the breast-milk. If there be reason to suppose that the amount of fluid received from the breast is limited and the stools are hard, boiled water may be given freely between nursings with the purpose of preventing undue absorption from the intestinal contents. Training of the lower bowel should begin soon after birth. This is facilitated by partially introducing a gluten or glycerin suppository for a few moments and gently massaging the abdomen at the same time each morning and late afternoon. The infant may then be held upright on a small, warmed chamber. The hour is chosen to be at the conclusion of nursing, when peristalsis is active. For the actual relief of constipation the suppository must usually be fully inserted into the rectum and left there. The habitual use of laxatives is harmful. By emptying the small as well as the large intestine they do not interfere with assimilation but tend rather to increase the difficulty which they are designed to relieve.

The constipation of bottle-fed infants is ordinarily best met by a general increase of the strength of the food, with possibly a somewhat greater increase in the fat, but not one exceeding 4 per cent. Orange juice should be given after six months of age, and if there be the usual evidences of rickets, cod-liver oil also. Oat meal gruel may be substituted as the diluent, and a malt sugar preparation be substituted wholly or in part for other forms of sugar. If these measures fail cascara is the best regulator, increasing from small doses until results are obtained. In Southworth's experience infants require relatively full doses of cascara preparations.

61½. **Sterility Due to Appendicitis.**—Young reports the case of a woman, aged 36, who had had several attacks of appendicitis, although a diagnosis was not made at the time. Her condition finally became such that an operation was advised. Both tubes were absolutely occluded and filled with a clear fluid. Amputation of both tubes was done an inch and three-quarters from the cornua. The ovaries, which were normal, were fastened by an interrupted cat-gut stitch to their normal position. The appendix was removed. It was strictured, contained three concretions, and about one-half dram of pus. After having been sterile for twelve years the patient was delivered of a normal child one year after this operation. The interesting point in this case is the fact that there was no possible source for an existing local peritonitis through the uterine canal, and that the appendix, lying at the brim of the pelvis with the tip just over the rim, and filled with pus, was ample cause for the peritonitis, which spread and occluded the tubes and formed the starting point of the hydrosalpinx.

Illinois Medical Journal, Springfield.

June.

62 The Dynamic Force of Drugs. E. H. Fitzpatrick, Pontiac.
63 Sources of Infectious Agents and the Ways and Means of Infection. L. Hektoen, Chicago.
64 Rôle of the House Fly and Other Insects in the Spread of Infectious Diseases. A. Hamilton, Chicago.
65 Standard of Government Meat Inspection. W. K. Jaques, Chicago.
66 Somnoform Anesthesia. C. M. Paden, Chicago.

July.

67 *Popularization of Medicine. H. C. Mitchell, Carbondale.
68 *Progress in Serum Therapy During the Year Ending June 1, 1906. E. R. Larned, Chicago.
69 *Treatment of Compound Fractures. E. H. Ochsner, Chicago.
70 Hydatidiform. G. C. Waiss, Chicago.
71 Prognosis and Treatment of Cerebral Apoplexy. J. Grinker, Chicago.
72 Cerebral Localization in Apoplexy. S. Kuh, Chicago.

67-68. See abstracts in THE JOURNAL, June 9, 1906, p. 1787.

69. Id.—June 23, 1906, p. 1965.

Philippine Journal of Science, Manila.

May.

73 Histology of the Skin Lesions in Varicella. E. E. Tyzzer, Boston.
74 Vegetation of the Lamo Forest Reserve. H. N. Whitford, Manila.
75 Waters of the Crater Lakes of Taal, with a Note on Some Phenomena of Radioactivity. R. F. Bacon, Manila.
76 Silver Oxid and Silver Suboxid. G. N. Lewis, Manila.

Yale Medical Journal, New Haven, Conn.

June.

77 Utilization of Carbohydrates, with Special Reference to the Problems of Infant Feeding. L. B. Mendel.
78 Prevention of Venereal Diseases. R. A. McDonnell, New Haven.
79 Use of Cocain in Surgery. R. F. Rand, New Haven.

Journal of the South Carolina Medical Association, Charleston.

June 21.

80 Locating Fistulæ in the Lower Intestinal Tract by Injecting Hydrogen Dioxid Through the Anus. H. A. Royster, Raleigh.
81 New and Efficient Procedure in the Treatment of Catarrhal Deafness. J. W. Jervey, Greenville.
82 Belladonna—Its Uses and Abuses. R. E. Mason, Charlotte.

Ohio State Medical Journal, Columbus.

June 15.

83 Diagnosis and Surgical Treatment of Gallstones. F. E. Bunts, Cleveland.
84 Myeloid Leukemia and the X-Ray. J. Eichberg, Cincinnati.
85 Diseases of Bones and Joints. H. J. Whitacre, Cincinnati.
86 Esophageal Stenoses. L. A. Levison, Toledo.
87 The Business Side of the Practice of Medicine. T. M. Johnson, Lima.
88 A Short Review of Medicine in Logan County from 1838 to 1842, Inclusive. S. W. Fuller, Bellefontaine.
89 Chronic Constipation. J. F. Kahler, Canton.

Cleveland Medical Journal.

June.

90 Tendon and Muscle Transference. E. H. Bradford, Boston.
91 Case Showing Abdominal Ptosis, Hyperchlorhydria, Regurgitation and Rumination. G. W. Moorehouse.
92 Vincent's Angina. L. W. Ladd, Cleveland.

The Canadian Practitioner and Review, Toronto.

June.

93 Intermittent Gastrosuccorrhea. G. Chambers, Toronto.
94 Mastoid Cases with Complications. W. Crawford, Toronto.
95 Additional Experience in the Treatment of Pelvic Disease Associated with Psychoses. E. A. Hall, Victoria.
96 Opsonins and Aggressins. E. V. Frederick, Albany, N. Y.

Denver Medical Times and Utah Medical Journal.

June.

97 Sore Throat in Pulmonary Tuberculosis. R. Levy, Denver.
98 Treatment of Hemoptysis in Pulmonary Tuberculosis. N. A. Johnson, Denver.
99 Treatment of Gastrointestinal Disorders in Pulmonary Tuberculosis. C. D. Spivak, Denver.
100 Treatment of Cough in Pulmonary Tuberculosis. S. Simon, Denver.
101 Treatment of Fever in Pulmonary Tuberculosis. A. M. Holmes, Denver.
102 Malnutrition as a Factor in Tuberculosis. A. M. Holmes, Denver.
103 Nerves of the Blood Vessels. B. Robinson, Chicago.
104 Successes and Failures in Roentgen Therapy of Epithelioma of the Lip. G. H. Stover, Denver.
105 Relation Between Diseases of the Nose and Throat and Those of the General System. J. M. Foster, Denver.

Kentucky Medical Journal, Louisville.

June.

106 Arterial Tension and Its Practical Significance. J. A. Flexner, Louisville.
107 *College Education Preparatory to the Study of Medicine. J. W. Pryor, Lexington.

107. Id.—Nov. 4, 1905, p. 1430.

Medical Examiner and Practitioner, New York.

June.

108 Address of President, Delivered Before Association of Life Insurance Examining Surgeons. W. Moore, New York.
109 An Undeveloped Field—the Advantages that May be Derived from Making Examinations for Accident Insurance Companies. C. H. Harbaugh, Philadelphia.
110 Liability Insurance. F. E. Allard, Boston.
111 Life Insurance Examiners in Their Relation to the Companies. F. Wells, Boston.
112 Mistakes Made by Insurance Examiners. G. G. McConnell, Chicago.
113 Medical Examination Considered as an Exhibit to a Commercial Contract. W. H. Birchmore, New York.
114 To What Extent Should Insurance Organizations Educate Their Insured as to Healthful Living. E. S. Sherrill, Detroit, Mich.
115 Life Insurance Medical Examiners, Medical Examiners' Associations and Reciprocal Relations Between Life Insurance Companies and Ourselves. L. H. Montgomery, Chicago.

Western Medical Review, Lincoln, Neb.

June.

116 Duties and Responsibilities of the Medical Profession. A. F. Jonas, Omaha.
117 Measures of Precision Influencing Prognosis. L. Crummer, Omaha.
118 Gall-Bladder Surgery, with Special Reference to Chronic Pericholecystitis. A. I. Mackinnon, Lincoln.

American Journal of Surgery, New York.

July.

119 Fourth of July Injuries, with Especial Reference to the Prophylaxis and Management of Tetanus. W. H. Luckett, New York.
120 Value of the Roentgen Rays in Surgical Diagnosis. C. Beck, New York.
121 Spontaneous and Criminal Abortion, from a Medicolegal Point of View. A. Vander Veer, Albany, N. Y.
122 Twentieth Century Featural (Cosmetic) Surgery. J. C. De Vries, Brooklyn, N. Y.
123 Plaster of Paris and How to Use It. (Concluded.) M. W. Ware, New York.
124 Diagnosis of Fracture of the Skull. W. A. Bryan, Nashville, Tenn.
125 A Possible Case of Intratracheal Arteriovenous Aneurism, or Exophthalmic Goiter. W. S. Bryant, New York.

Journal of the Outdoor Life, Saranac Lake, N. Y.

July.

126 The Ottawa Tent Colony. J. W. Pettit, Ottawa.
127 State and Municipal Control of Tuberculosis. M. P. Ravenel, Philadelphia.

Journal of the Association of Military Surgeons of the United States, Carlisle, Pa.

July.

128 Prevention of Disease in the Army and the Best Method of Accomplishing that Result. C. E. Woodruff and F. T. Woodbury, U. S. A.
129 Practical Methods for the Purification of Drinking Water. W. H. Devine.
130 Transport Model for Conveying Recumbent Wounded Over Rough and Mountainous Roads. A. Ross.
131 A Much Needed and Easily Effected Reform in Camp Sanitation. N. Roberts, P. H. and M.-H. S.
132 Physical Effects of Gun Fire. L. Thomas, N. G. S.
133 Malaria and Mosquitoes at Lucena Barracks, Philippine Islands. H. Page, U. S. A.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

June 23.

1 Meaning and Mechanism of Visceral Pain. J. Mackenzie.
2 *Chorea Considered as Cerebral Rheumatism. D. Duckworth.
3 *Dilatation and Hypertrophy of the Heart and Some Other Points in Cardiac Pathology. S. West.
4 *Congenital Heart Disease. F. J. Poynton.
5 *Aortic Insufficiency. S. Taylor.
6 *Degeneration of the Myocardium in Hot Climates. W. C. Brown.

2. **Chorea and Rheumatism.**—Duckworth reiterates his belief that chorea is a variety of rheumatism which more particularly involves the brain. He says that the evidence in favor of the rheumatic nature of chorea is stronger, if possible, from the clinical than from the bacteriologic side. Chorea is more frequently seen in families prone to rheumatism. It may precede by months or years an onset of rheumatic fever, or it may supervene during an attack. It may also occur subsequent to such an attack, with or without overt rheumatic complications. Duckworth's statistics show a family or personal history of rheumatism in 85 per cent. of cases of chorea. He believes that a larger percentage could be discovered if it were possible to secure accurate histories of past attacks of the disease. The occurrence of chorea may be the sole manifestation of an attack of rheumatism. It is thus a true cerebral rheumatism and in first attacks of rheumatism and in first attacks of chorea there is not seldom to be observed a distinct degree of cardiac dilatation, sometimes independent of pyrexia, pericarditis, or appreciable endocarditis.

3. **Cardiac Pathology.**—One of the subjects referred to by West is cardiac pain or angina, which he likens to similar pains caused by the effort made on the part of any muscular organ to get rid of its contents. He terms this effort on the part of the heart the cardiac colic, thus placing angina in the general group of colic.

4. **Congenital Heart Disease.**—Poynton discusses the morbid changes in congenital heart disease under two headings: 1. Those due to malformation. 2. Those due to intrauterine endocarditis. A number of cases in point are cited.

5. **Aortic Insufficiency.**—Taylor reports several cases illustrating the advantages which will accrue to a patient with aortic insufficiency when he also has a co-existing mitral insufficiency. He says the distress is less and that the patient is also capable of greater exertion. There is a safety-valve action through the mitral orifice comparable to the tricuspid safety valve on the right side during prolonged muscular strain. Taylor believes that digitalis is beneficial in aortic regurgitation only when there is also present mitral regurgitation, and that although digitalis is the most powerful remedy in mitral disease, in cases of pure aortic regurgitation digitalis is not only a dangerous drug but actually a poison.

6. **Degeneration of the Myocardium.**—Brown describes a somewhat unfamiliar but by no means infrequent result of residence in the tropics, a peculiar form of degeneration of the cardiac muscle. Sudden and unanticipated death occurs not infrequently after an apparently trivial illness. Contrasted with the commoner forms of myocardial decay the salient features of the disease are the absence of fainting fits, the inconsiderable impairment of the circulation, the vagueness of the physical signs, and the fact that fatal syncope usually supervenes in the absence of unwonted exertion. It is perhaps only a coincidence, but one the importance of which will not be overlooked, that death frequently occurs at night and after the administration of a soporific. The disease is one of the imprudently strenuous life. It occurs usually in those who are given to over indulgence in hard exercise. This degeneration occurs in persons who abstain altogether from alcohol, in moderate drinkers, and in those who are chronically overstimulated. It affects smokers and non-smokers alike, but women distinctly less than men. Repeated attacks of malarial and other fevers, and the high body temperatures usually associated with cardiac asthenia and cloudy swelling, do not originate it, while, contrary to the opinion which was formerly held by many physicians, it seems to have no relation to beriberi. The postmortem appearances are fairly uniform. On opening the pericardium (which contains no excess of fluid) the heart is found to be somewhat larger than normal. It lacks the resistance of a healthy organ, and is lax and flaccid. Epicardial fat is markedly deficient. If the viscus is removed from the thorax and held up by the great vessels, it sags and droops; in extreme cases the parietes are so loose that it collapses in mushroom shape over the hand that grasps it. Section into the ventricles shows no dilatation and no endocarditis; on the contrary, the lining membrane is blanched and bloodless. A similar condition prevails in the muscle; there are no infarcts, no points of hemorrhage, no deposits of pigment, no fat, no reaction to iodin, no serous atrophy. The coronary arteries are dilated and soft, and show no atheromatous change. The myocardium is pale, almost to whiteness, soft and friable. Microscopically, the intermuscular connective tissue is seen to be swollen, and apparently increased in quantity, but round-celled infiltration and vascular congestion are absent. The condition of the individual fibers suggests cloudy swelling; the section looks waterlogged; it appears to have a general boggy turbidity, the striæ are hazy and indistinct, and there is occasional rupture and fragmentation of the ultimate strands. From other indications it is obvious that the general nutrition is profoundly impaired, and that the myocardial lesions, as in the case of other retrogressions of tissue, are only prominent incidents of a general dyscrasia.

The Lancet, London.

June 23.

7 *Uses of Pessaries. P. Horrocks.
8 Insanity and Murder. T. C. Shaw.
9 Aphasia. B. Bramwell.
10 *Primary Pneumococcal Arthritis. W. Pasteur and L. Courtauld.
11 *Case of Congenital Hypertrophy of the Pylorus. J. W. Rob.
12 *Orientalism; or a Change to an Eastern Appearance. H. W. Dodd.
13 *Epithelioma of the Tongue with Secondary Growths in the Glands of the Neck and the Liver Treated by X-Rays. R. Knox.

7. **Uses of Pessaries.**—Horrocks says that there is one great advantage in trying to relieve women who suffer from displacements, by means of pessaries—namely, that it is, to-day,

a treatment that is absolutely free from danger to life and there is no mortality. It is for that reason, as well as because it has been his experience to meet with few cases in which complete failure occurs, that he is strongly advocating a patient trial of pessaries before resorting to operative procedures which even in the best of hands have a slight immediate mortality, which in itself, apart from other objections, renders it necessary to have very weighty reasons for recommending and carrying out such operations. One writer has said that the day of pessaries is over. Horrocks does not think so. On the contrary, he thinks that they will be used more frequently as the rank and file of the profession come to understand more clearly the principles of their action.

10. Primary Pneumococcal Arthritis.—Pasteur and Courtauld summarize their paper as follows: 1. Primary pneumococcal arthritis is apparently of rare occurrence in adults. 2. In children it is less uncommon. 3. The path of infection is the blood stream, to which the organisms gain access through some slight and unnoticed area of injury. This is in all probability situated in the mouth, nasopharynx, or middle ear, and the relative frequency of this form of arthritis in infants and young children may be connected with their susceptibility to inflammatory conditions of these regions. 4. The infection is usually localized at first in one joint and may remain so; on the other hand, it may become generalized. 5. The death rate in the primary form compares very favorably with that of secondary pneumococcal arthritis. This may be accounted for by the usual restriction of infection in the former, whereas the latter generally implies a more or less pronounced septicemia. 6. It is probable that the records available do not convey an accurate idea of the frequency of this form of arthritis, as many slight cases, which recover without surgical interference, must escape bacteriologic examination.

11. Congenital Hypertrophy of Pylorus.—The line of treatment adopted by Rob in this case was that of washing out the stomach every day and feeding the baby on peptonized milk (1 part) and water (2 parts), in amounts of half an ounce every hour. The child improved steadily under this treatment and an operation is unnecessary. The food was changed, both as to kind and amount, so as to be in keeping with the needs of the patient and the capacity of the stomach and its ability to take care of the food.

12. Orientalism.—Dodd cites the case of a man, aged 47, whose facial appearance underwent a distinct change, becoming Mongolian in type. The only subjective symptoms appeared to be a feeling of general weakness and a vague alteration of sensation, although the latter was not constant. There was some hemiatrophy of the tongue, and when protruded it inclined slightly to the right side. There were no other paralyses. The reflexes were normal. A complete blood examination showed no abnormality. Vision was normal in both eyes. The patient always seemed rather sleepy. His memory was bad. The cause of this change could not be discovered. The testes were very small, unequal in size, and abnormally tender and soft. Sexual desire was absent. Dodd thinks that this case forms a type by itself.

13. Epithelioma of Tongue.—The interest in Knox's case centers in the apparent arrest of the primary growth by the *x*-ray, and the changes occurring in the several glands in the neck. The patient died as the result of the secondary involvement of the liver.

Journal of Tropical Medicine, London.

June 15.

14 Subhepatic Abscess. J. Cantlie.
15 Anatomy of the Biting Flies of the *Genera Stomoxys* and *Glossina*. (To be continued). G. M. Giles.
16 Puru of the Malay Peninsula. T. D. Gimlette.

The Practitioner, London.

June.

17 *Some Obscure Cases of Urinary Disorders. R. C. Elsworth.
18 The Throat and Nose in Relation to Phthisis. H. Barwell.
19 *Certain Bodies Present in the Chancre, in the Condyloma, and in the Blood During Secondary Syphilis. W. E. de Korte.
20 Treatment of Tuberculous Peritonitis. T. Guthrie.
21 Necrobiotic Fibroids and Pregnancy. F. E. Taylor.
22 After-Treatment of Cases of Suprapubic Cystotomy. G. H. Colt.
23 Removal of a Tracheotomy Tube Which Had Become Impacted in the Left Bronchus. R. Fullerton.
24 Case of Bronchiectasis Successfully Treated by Incision and Drainage. T. Redmayne.

17. Urinary Disorders.—Elsworth reports ten cases which clearly illustrate certain difficulties in diagnosis and the value of the cystoscope as an aid in diagnosis. He emphasizes the following points: Cystitis lasting for long periods, due to a primary lesion of the bladder, and accompanied throughout its entire course by acid urine, is much more common than is generally supposed. The occurrence of urinary disorder with acid pyuria, and frequency of micturition, does not mean that a bladder lesion is excluded, and that the lesion is necessarily in the kidney. That it is possible to have extensive disease of the kidney without any urinary symptoms whatsoever, and that too with normal urine. There may be urinary symptoms consisting of pain, frequency of micturition and acid pyuria without disease of either kidney or bladder, the symptoms being due to a lesion in the ureter. The various organs are so intimately connected that the symptoms produced by disease of one may be common to all. The differentiation is only possible by physical examination, in which the cystoscope gives valuable aid. In a certain limited number of cases, the administration of a pigment, such as aniline dye, facilitates the recognition of a partially, or completely, blocked ureter.

19. Bodies Present in Blood During Secondary Syphilis.—de Korté examined the blood of a large number of syphilitics and failed to find a single spirochete, either pallida or refringens. He did find, however, bodies distinctly protozoan in nature, whose life cycle he studied carefully. He does not offer any opinion as to the causal relationship to syphilis of these organisms.

Bulletin de l'Académie de Médecine, Paris.

25 (Year LXX, No. 24.) Results of the "Nursling Consultations." —Des consultations de nourrissons. P. Budin.
26 Sudden Hematoma of the Uvula.—Quelques cas de suffusion sanguine brusque de la luette. P. Fabre.

Press Médicale, Paris.

27 (XIV, No. 45.) *Sleeping Sickness.—La maladie du sommeil. E. Brumpt.
28 (No. 46.) Appendicite et Typhlo-colite. P. Reclus.
29 Traitement chirurgical des tumeurs scrotales dans les pays chauds (in the tropics). Thiroux and D'Anfreville.
30 (No. 47.) Le réflexe gastro-salivaire. H. Roger.
31 L'autonarcose. I. Dusciau.
32 (No. 48.) Asphyxie locale et gangrène des extrémités d'origine tuberculeuse. G. Guillain and P. Thaon.
33 *Les gastrorragies frustes. A. Falloise.

27. Sleeping Sickness.—Brumpt advises in prophylaxis of sleeping sickness that communication between infected and non-infected regions should be restricted. Workmen and soldiers should be obtained for infected regions only from regions already infected, and in the still healthy parts only from regions still free from the disease. He urges search for regions and zones where the insect intermediate host is not found, and that villages be founded there. The children born after the removal will be free from the scourge, and it will gradually die out. The French Geographical Society is now fitting out an expedition for the study of the disease, to make Brazzaville its headquarters. Two physicians and a naturalist comprise the party.

33. "Occult" Gastric Hemorrhages.—Falloise prefers to call the minute quantities of blood escaping into the stomach "gastrorragies frustes," instead of Boas' term "occult bleeding." He regards it as a most valuable differential sign, confirming the diagnosis of ulcer in cases suggesting a possible neurosis, differentiating further chronic gastritis or achylia from cancer, and even ulcer from cancer, if the findings under treatment are borne in mind. It sometimes reveals the presence of a cancer not causing any other symptoms. The absence of the "fruste gastrorrhagia" can also serve to exclude cancer in certain dubious cases, even when a tumor can be palpated.

Semaine Médicale, Paris.

34 (XXVI, No. 25.) *La fièvre ganglionnaire. L. Cheinisse.

34. Glandular Fever.—Cheinisse reviews what has been written on glandular fever in Europe and in this country. There can be no doubt, he says, that the affection is a general in-

fection, with a well-defined clinical syndrome. The glands involved are those near the posterior margin of the sterno-cleido-mastoid muscle. The onset in children is generally sudden, with torticollis, accompanied by sore throat and constipation. The principal differentiating features are the localization and the evolution of the glandular affection, the lack of proportion between the enlargement of the glands and the manifestations in the mouth and throat, and the slight tendency to suppuration. Differentiation is more difficult if the patient has recently had scarlet fever. Epidemics of glandular fever have been observed in adults, one occurring in a Russian regiment. Among the complications noted have been epistaxis, nodular erythema, and acute nephritis, and Kissel has recently reported two cases in which there was great prostration and rapid emaciation. In Moussoux's case the general disturbances were so severe that they were ascribed to incipient tuberculosis. Treatment should include suppositories of quinin or antipyrin to reduce the fever, supplemented by purgatives. The local measures advised are camphorated oil on plenty of cotton or an ichthyol salve, or merely moist compresses with an impermeable outer covering. The patient should be isolated to prevent contagion of others, although the isolation need not be so severe as for other infections as the receptivity is limited.

Beiträge z. Geb. und. Gynäkologie, Hegar's, Berlin.
Last indexed, page 77.

35 (X, No. 3.) *Ueber die Erfolge der vaginalen Uterus-Exstirpation wegen Karzinom. A. Blau.
36 Untersuchungen ueber die Veränderungen der Decidua basalis bei manuell gelösten Placenten. H. Jockers.
37 Bakteriologische Untersuchungen des Genital-Sekretes neugeborener Mädchen (of newborn female infants). V. Neujean.
38 *Anatomische, experimentelle und klinische Untersuchungen zur operativen Erweiterung des Beckens (enlargement of pelvis). H. Sellheim.
39 *Ueber die Anwendung der Tuberkulinpräparate, speziell den diagnostischen Wert des alten Tuberkulin bei Genitaltuberkulose. R. Birnbaum.
40 Beitrag zur Lehre von den Cysten der Nabelschnur (cysts of umbilical cord). H. Haas.
41 Ueber den Sitz des Fruchtkuchens und die Bedeutung dieses Sitzes für die Geburt (site of placenta with regard to birth). O. H. Petersen.
42 Fall von Sarcoma hydropicum papillare. J. Bäcker and K. Minich.
43 Zur Steigerung der Widerstandskraft des Organismus durch klinische Leukozytose (artificially induced leucocytosis). J. Hofbauer. (Commenced in vol IX.)

35. **Vaginal Extirpation of Cancer.**—Blau gives a detailed report of all the vaginal radical operations for cancer performed at the Chrobak clinic between 1890 and 1903, and also the abdominal operations during the last few years. The Schuchardt incision is preferred. It has widened the range of operability. Fully 25 per cent. of the carcinomas of the cervix have failed to show evidence of recurrence since the operation, and 76.4 per cent. of the carcinomas of the corpus. In 5,587 women examined in the clinic for various affections in 1900-1901, carcinoma was found in 153, and in 24 of these cases it was found to be operable (15.6 per cent.). In the following year carcinomas were found in 85 out of 4,626 women, operable in 28 (32.9 per cent.). Between March, 1902, and October, 1903, 9,365 women were examined and carcinoma was found in 96, operable in 51 (26 per cent.). There has been no recurrence in 45.8 per cent. of 24 cases treated by vaginal "igni-extirpation" and traced for several years. A total of 113 patients were treated by this method of vaginal total extirpation with the Paquelin cautery, with one death each from pyemia, marasmus and the anesthesia, and 4 deaths from peritonitis. The article is based on 244 cases of vaginal total extirpation of uterine cancer.

38. **Anatomic, Experimental and Clinical Researches on Operative Enlargement of the Pelvis.**—Sellheim has been studying and comparing symphyseotomy and pubiotomy. The enlargement of the pelvis proceeds about the same with each, but pubiotomy seems to protect better against laceration of the soft parts. He advises the latter in cases in which the head of the child is exceptionally large, even when the pelvis is of normal size. His articles in this and the preceding volume give a graphic reproduction of the actual topography of the pelvis by a new and ingenious method of casts.

39. **Tuberculin Diagnosis of Genital Tuberculosis.**—Birnbaum found tuberculin of the greatest assistance in 17 cases, both for differentiation and treatment. One of his patients was apparently in perfect health nine years after operative cure of a peritoneal and genital tuberculous affection. She returned to ask if she could marry; the pronounced reaction to the tuberculin test decided the question. In another case nodules in the breast of a pregnant woman suggested a tuberculous affection, but the tuberculin test was negative. Later surgical treatment showed the nodules to be enchondromas. The fetus did not seem to be affected by the tuberculin in any of the cases in which it was given. Birnbaum expresses regret that gynecologists pay so little heed to tuberculin.

Berliner klinische Wochenschrift.

44 (XLIII, No. 13.) *Upper Limit of Dullness in the Back in Case of Pleural Effusions.—Verhalten des medialen Abschnitts der hinteren oberen Dämpfungsgrenze bei pleuralen Flüssigkeitsansammlungen. G. Krönig.
45 Weitere Beobachtungen ueber Spirochæte pallida. A. Buschke and W. Fischer.
46 Die Lungentuberkulose im Schulpflichtigen Alter (during school age). H. Roeder.
47 Firearm Wounds of Skull.—Die Prognose und Therapie der Schädelverletzungen durch die modernen Kriegsfeuerwaffen. Hildebrandt.
48 (No. 14.) *Ueber die moderne Therapie der chronischen Herzkrankheiten (heart affections). F. A. Hoffmann.
49 *Mutual Relations Between Heart and Stomach Affections.—Ueber die Wechselbeziehungen zwischen Herz- und Magen-Darmleiden. Ad. Schmidt.
50 *Zur Therapie der Nephritis. A. Strasser and R. Blumenkranz.
51 *Ueber Nervenplatt im Anschluss an gynäkologische Operationen. O. Kaiserling.
52 Ueber das Verhalten der Tuberkel-Bacillen an der Eingangspforte der Infektion (behavior of tubercle bacilli at entering point). A. Uffenheimer.
53 *Disturbances in Ocular Domain of the Trigeminus.—Ueber Störungen im Augengebiet des Trigeminus, speziell des Cornealreflexes und ihre diagnostische Verwertung. Kempner. (Concluded.)
54 *Ueber Arteriosklerose und Nephritis. F. Hirschfeld. (Concluded.)

44. **Differentiation of Pleural Effusions from Pneumonia.**—Krönig has found a triangular area of resonance in case of a pleural effusion which is contrary to the teachings of the text-books. His experience with nearly a thousand cases has convinced him that this area may serve to differentiate a pleural effusion from pneumonia in dubious cases. This area, comparatively free from dullness, lies between the effusion and the spine, and testifies to the fact that at this point there is little if any fluid. Krönig found the highest point of the area of resonance at the inner margin of the scapula, the upper limit sloping gently from this point toward the axilla and the spine.

48. **Modern Treatment of Heart Affections.**—Hoffmann studies the cases of heart affection in which digitalis will do most good, also the "iodin cases," and the cases which are benefited most by cold water. He thinks that more can be learned from comparison of the heart sounds than from the sounds themselves. The relative behavior of the second sound is the criterion for digitalis. Very little can be expected from digitalis, he states, when the second sound is weaker at the base than the first sound. If the first sound is like a drum then digitalis is contraindicated, he thinks. What he calls the "iodin heart" is encountered in individuals with high tension in the aortic system, while the heart sounds do not behave normally, the second sound being much too sharp. The second sound at the apex is decidedly louder than the first. The kidneys must be sound and there must be no tendency suggesting exophthalmic goiter or hemoptysis. This class includes many cases of insufficiency of the aortic valves, of aneurisms, of arteriosclerosis, either of the coronary arteries or of the aorta and peripheral regions. Persons with normal or subnormal blood pressure do not belong in this group. He gives the iodin for from four to six weeks, and again after a longer pause, if benefit has been derived, and he has witnessed very fine and durable results. The only safe means to reduce the blood pressure permanently, he states, is by hygiene and dieting. The "cold water heart" is distinguished by the fact that the second sound is feebler at the base than the first. This behavior of the second sound is especially noticeable in exophthalmic goiter. Such patients require hydrotherapy and avoidance of irritation from the food, giving the preference to milk or milk and vegetables. Many find out from their own experience that cold applications to the heart relieve them,

a small ice bag, coil of tubing with cold water, or the like. Patients who do not belong in these three groups can be benefited by general treatment with balneotherapy, respiration and hygiene of the heart, and these measures are also useful as adjuvants in the above groups. The fame of many health resorts, he states, is due more to the hygiene taught and enforced than to any special virtues in the waters. In no way, he continues, can we supply such a vigorous wave of blood to the heart for its nourishment as by deep breathing, and this means of aiding the heart should never be neglected in the early stages of heart disease. Many cured cases of "beer heart" testify that it is effectual even with advanced disturbances. He advises it especially in case of arteriosclerosis, the action of iodin and of carbonated baths being much less reliable. Elderly patients and those with emphysema, bronchitis or anemia are sure to benefit from it, if the physician orders it with the proper dosage and in the proper guise. All other measures besides these six mentioned are merely symptomatic. In conclusion he warns against direct massage of the heart and also against treating people for heart disease who have not got it. He has been making a special study of the displacement of the heart from the lifting up of the diaphragm by the enlarged or distended stomach. This chronic lifting up of the diaphragm is met with in certain stomach troubles, in habitual constipation, and in case the musculature of the diaphragm is diseased. The patients do not complain of their stomach, but only of palpitations and oppression of the heart. The anatomic conditions are not known as no one dies in consequence of them, but anatomists should be on the lookout for them when examining cadavers when such symptoms have existed during life.

49. **Mutual Relations Between Heart and Gastrointestinal Affections.**—Schmidt relates several case histories of persons who applied to him for relief from gastrointestinal trouble distinguished by accumulations of gas in the stomach and intestines. These patients were otherwise apparently in good condition and after the gas had passed off in eructations or flatus they were relieved until it assembled again after the next meal. He is convinced that the trouble is due to the insufficient absorption of the gases by the venous blood. Digitalis helps here. Normally the blood absorbs a large proportion of the gas ingested or formed in the digestive tract. When there is any stasis in the gastrointestinal blood vessels, the gases are not absorbed, and their accumulation is a sign of defective functioning of the circulatory apparatus, sometimes before any other signs call attention to it. It is especially important in case of heart disease as the accumulations of gases react mechanically and injuriously on the heart. Stasis of the blood induces a predisposition to catarrhal affections. He cites a typical example of severe gastrointestinal trouble on this basis, cured by digitalis. One patient died as the result of intestinal hemorrhages, but no lesion could be found in the digestive tract beyond a simple stasis catarrh. He also describes cases of the reverse condition, namely, functional disturbance of the heart from gastrointestinal affections. He is inclined to believe that there is always some underlying organic or functional disturbance in the heart in the cases of irregularity in the pulse, and attacks simulating angina pectoris and asthma ascribed to gastrointestinal factors. The connection with the digestive disturbances is apparent from the periodical recurrence of the symptoms. The digestive disturbances are generally mild and of a functional nature, anomalies in secretion, atony or gastric neuroses, but there are almost always accumulations of gas. The innervation of the stomach and also of the heart is probably abnormally sensitive in these patients. The prognosis is favorable so long as the heart trouble is only functional, but if it is organic, irreparable harm may be done by reflex action, as in a case described in which a patient with mitral insufficiency succumbed to an attack of acute gastritis. Faradization and massage of the abdomen may prove useful in supplementing the regulation of the diet and bowels. Rest in bed is imperative for all these patients. It has proved particularly useful in the cases of heart affections masked by stomach symptoms. Digitalis, possibly given by the rectum, is more effectual than all other measures combined.

50. **Treatment of Nephritis.**—Strasser and Blumenkranz announce that the diuresis and the elimination of nitrogen and of sodium chlorid are very favorably influenced in nephritic patients by prolonged baths, from an hour to an hour and a half in length, in water at 34 C. (94 F.). The albuminuria was not essentially modified, although the influence was favorable in their experience. One nephritic patient was given electric light sweat baths for several days, and notwithstanding that the elimination of sodium chlorid, etc., was ample, covering the intake, yet edema of the face developed. This they accept as a sign that edema is due to injury of the vessel walls, and not exclusively to retention of sodium chlorid and water.

51. **Nervous Affections After Gynecologic Operations.**—Kaiserling relates his experience with hydrotherapy in 29 cases of neurasthenic and hysteric disturbances after gynecologic operations—all observed during the last year. Prophylaxis lies in the hands of the gynecologist, he remarks. If nervous symptoms are apparent, treatment should be begun at once as the results are more favorable than in long established cases.

53. **Diagnostic Significance of Ocular Reflexes.**—Kempner has been studying this subject on hundreds of persons, including 350 cases of organic affections in the domain of the trigeminus, and 400 without organic trouble. After discussing the anatomy and physiology of the parts, he tabulates his findings in detail, and classifies the cases. When the corneal reflex was absent or diminished, this occurred on one side only in the cases of organic affections, while it was bilateral in the functional disturbances. In the organic cases the anomaly in the reflex was generally accompanied by sensory disturbances affecting the trigeminus or some of its branches, while in the merely functional cases there were no sensory disturbances, or if present they did not correspond to the trigeminus area. In the organic cases, further, the sensory disturbances were progressive. In case of a tumor in the posterior cranial fossa the cornea was first effected, then the rest of the first division of the fifth nerve, and then the second, and finally the third division, while in the true functional cases the reflex anomaly and the sensory disturbances were not progressive and were liable to alternate irregularly. In 4 cases the diagnosis wavered between tumor of the cerebellum and hydrocephalus: the corneal reflex was normal or exaggerated. Hydrocephalus was found in the 2 that came to autopsy.

54. **Mild Course of Arteriosclerotic Nephritis in the Aged.**—Hirschfeld describes a few cases of general arteriosclerosis in elderly patients with typical arteriosclerotic contracted kidney, and yet there was no hypertrophy of the heart, and during life there had been no symptoms of cardiac disturbance. The mildness of the course of the nephritis resembles that of ordinary atrophy of the kidneys in the aged. It harmonizes also with the fact, he says, that true nephritis never has been clinically demonstrated as the outcome of general arteriosclerosis alone in the aged. Also that nephritis as the result of diabetes has never been observed in an elderly diabetic, although it is common in diabetics between 40 and 60.

Centralblatt f. d. Grenzgebiete der Med. u. Chir., Jena.
Last indexed XLVI, page 424.

55 (VIII, No. 24.) Route of Infection of Tuberculosis.—Die Infektionswege der Tub. R. Fischer and W. Fischer-Defoy. Collective review of the literature. (Commenced in No. 22.)

56 (IX, No. 1.) *Die Mediastino-Pericarditis und ihre chirurgische Behandlung (Cardiolyse). R. Paschkis. Collective review.

57 (No. 5.) *Erfahrungen über Diabetes und Glykosurie (Gravidität, Heredität, Albuminurie, Narkose, etc.) G. Salus.

58 *Results of Operative Treatment of Perforated Gastric Ulcer.—Operationserfolge bei der Perforation des Ulcus ventriculi. S. Goldstücker. Collective review. (Commenced in No. 1.)

59 (No. 9.) *Die Cytologie der Ex- und Transudate. H. Rautbitschek. Collective review. (Commenced in No. 2.)

56. **Mediastino-Pericarditis and Its Surgical Treatment.**—Since Brauer—an internist—first suggested in 1902 to free the heart by opening up the bony wall over it, this operation of cardiolysis has been performed in 7 cases, according to the literature collected by Paschkis. The results of the operation were strikingly beneficial in every instance. All the patients bore the intervention well, the pulse became stronger, the cyanosis and all the symptoms of stasis subsided. The patients

feel subjectively well and have returned to their work or business. Some have been under observation nearly two years. One died recently of pneumonia, and autopsy showed slight degeneration of the heart muscle. The symptoms accepted as demanding cardiolysis were those of cardiac insufficiency, accompanied by the direct symptoms of the pericarditis, including the systolic retraction of the thorax and the diastolic rebound, the occasionally missing apex beat, the diastolic collapse of the jugular veins, and signs of an old pleurisy. The area of cardiac dullness was generally enlarged, the pulse sometimes full and tense, sometimes the pulsus paradoxus. Auscultation always disclosed, besides the usual heart sounds, an extra sound following the second heart sound and synchronous with the diastolic rebound of the thorax wall. In one of Brauer's 3 patients who were operated on, five sounds could be heard, as the first and even the second sound was reduplicated. This second diastolic sound is diagnostically important; it coincides with the rebound of the thorax and the collapse of the jugular veins, and it is distinctly separated by an interval from the first diastolic and the systolic sound. Brauer advised resection of the ribs and of even part of the sternum, with or without detaching the adhesions. A flap of the soft parts with the base above is turned back, and the third to the fifth ribs are resected from the left margin of the sternum to the anterior axillary line. The flap is then replaced and a drain inserted.

57. **Glycosuria and Diabetes.**—Salus bases his article on personal experience and comparison with 15 of the more important works on the subject in recent years. Only 6 out of his 34 cases of inherited diabetes were in women. In 2 instances both husband and wife were affected, but he thinks that common ingestion for many years of food too rich in starch was probably the predisposing factor. In 14 individuals the symptoms were recognized between the ages of 10 and 30. Tuberculosis developed in 2 of his 251 patients with diabetes—not inherited—and in 2 of the 34 with the inherited disease. Many of his patients are over 50 and 60, and yet they exhibit no indications of arteriosclerosis. His experience confirms the observation that a hereditary predisposition to the disease is most marked among Jews. The prognosis of glycosuria in pregnancy and in inherited diabetes proved more favorable in his experience than in that of others, but he found that considerable albuminuria had an unfavorable prognosis. His experience contradicts the possibility of actually curing a case of diabetes, but it demonstrates that it is possible to save the patient many disturbances and to prolong his days by regulating his mode of life according to the individual phenomena which are the response to the ingestion and the restriction of carbohydrates year in and year out.

58. **Results of Operative Treatment for Perforated Gastric Ulcer.**—Goldstücker summarizes his study of 259 articles on the subject as imposing the necessity for prompt operative intervention in case of perforation of an ulcer in the stomach. There are no reliable signs of impending perforation, but in the majority of cases there have been symptoms for years suggesting a stomach affection. Women are affected oftener than men, and the female patients as a rule are younger than the male. A sudden, violent pain in the stomach region usually accompanies the perforation, with localized peritoneal friction sounds. Initial vomiting is generally observed, and the abdominal walls are rigidly taut. The vanishing of the liver dullness as a diagnostic sign of perforation of the stomach is overestimated. Too much time should not be wasted on waiting for the patient to recover from shock. The anesthesia can be general or local as preferred, but the incision must be ample, and the posterior stomach wall should always be examined, as there is a possibility of multiple ulcerations. Simple tamponing should not be used if it can be avoided. Statistics show that about 50 per cent. of the patients recover. Recovery without operation has seldom if ever occurred unless the stomach was empty at the time of the perforation. In 236 cases the time when the operation was performed is given; 71 per cent. of these patients operated on within the first twelve hours recovered, while only 46 per cent. recovered after the twelfth hour. The end results are constantly growing better with time.

59. **Cytology of Effusions and Exudates.**—This extensive study of this subject as presented in the literature terminates with the remark that there is no cytologic formula in any accumulation of fluid which is pathognomonic for any affection. At the same time the cellular constituents of the fluid throw some light on the quality of the process occurring in the preformed cavities of the body, and the cytologic examination of effusions and exudates may prove a valuable aid for diagnosis. It is especially important for the differential diagnosis of nervous and mental affections.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

60 (XXXII, No. 20.) Die Migraine. E. Mendel. Clinical lecture.
61 *Versuche zur Serodiagnostik und Serotherapie der epidemischen Cerebrospinalmeningitis. G. Jochmann (Breslau).
62 Bemerkungen zur Sahlis Desmoid-Reaktion des Magens. Max Einhorn, New York.
63 Origin of Atrophy of the Eyeball.—Experimentelle und klinische Untersuchungen über die Entstehung Phthisis Bulbi. O. Schirmer.
64 Cultivation of Spirochetes on Artificial Solid Media.—Ueber Züchtung von Zahn-Spirochæten und fusiformen Bacillen auf künstlichen (festen) Nährböden. P. Mühlens.
65 Calculi in Lungs.—Ueber Lungensteine. E. Bürgi (Berne).
66 Spastic Paralysis of Children.—Die spastischen Lähmungen der Kinder und ihre Behandlung. A. Hoffa. Clinical lecture. (Concluded.)
67 (No. 21.) Diagnose und Behandlung des Plattfusses (of flat foot). G. Lederhose. Postgraduate lecture.
68 Pancreas und Diabetes. G. Herxheimer.
69 Fall von gleichzeitigem Bestehen von Typhus und Amœben-Dysenterie kompliziert durch Milz- und Leberabscesse. M. Martin (Togo).
70 *Operation bei Barlowscher Krankheit (infantile scurvy). H. Riese.
71 Pulse rate of 56 in Internal Hemorrhage from Tubal Pregnancy.—Ein seltenes Pulsphänomenon bei innerer Blutung infolge von Tubenschwangerschaft. Rosenstein.
72 *Trephining Labyrinth, etc., for Subjective Sounds in Sclerosis of Middle Ear.—Lab.-Trepanation und Auskratzung des Vorhofs wegen quälender Geräusche bei sogenannter "Mittelohrsklerose."—Otospongiose. Mattè.
73 Celluloid Cylinders Instead of Napkin Rings.—Servietten-hüllen aus Celluloid M. Edel.
74 Tumor Between Cerebellum Pons and Temporal Lobe.—Fall von Kleinhirnbrückenwinkelgeschwulst. Puschmann.

61. **Serum Treatment of Cerebrospinal Meningitis.**—Jochmann has succeeded in producing a prepared serum which he claims has given good results in 17 clinical cases. The injections were made subcutaneously and by lumbar puncture, and their harmlessness has apparently been established. He suggests that the serum might be used as a preventive for the sound "meningococcus carriers."

70. **Operative Treatment of Infantile Scurvy.**—Riese was summoned to operate in a supposed case of multiple osteomyelitis in a male infant of 14 months. The aspect of the interior of the mouth, however, revealed that it was a case of infantile scurvy. The large hemorrhagic extravasations on the leg were so prominent and painful that he incised them, cutting down to the periosteum and releasing the accumulated blood, afterward tamponing. The child was relieved at once, the fever subsided, and the small wounds rapidly healed. Roentgen examination later showed that the bone was sound, with no traces of the preceding trouble. Heubner has also reported similarly favorable results in a case in which an operation was performed on a mistaken diagnosis (sarcoma). The lack of inflammatory swelling of the musculature differentiates the affection from osteomyelitis. The process is restricted exclusively to the bone.

72. **Trephining the Labyrinth, etc., for Subjective Sounds.**—Mattè describes a case in which he performed this extensive operation to relieve a patient tormented by unbearable subjective sounds due to sclerosis of the middle ear. The sounds were banished by the operation and sleep restored, although a slight seething sound is still heard at times. He describes his technic and argues that the intervention is justified in certain cases. He curetted the vestibular portion of the cochlea after trephining the labyrinth. Excision of the ossicles had failed to give relief.

Muenchener medizinische Wochenschrift.

75 (LIII, No. 13.) Zur Morphologie und Biologie der Mastcellen, Leukozyten und Lymphozyten. J. Arnold.
76 Ueber die diagnostische Sonderung echter Cholerafälle von cholera-ähnlichen Erkrankungen (differentiation of true cholera). C. Berger.
77 Ueber den Rachenreflex (throat reflex). W. Baumann.
78 *Die Arteriosklerose in der Chirurgie. E. Siegel.

79 Ueber Behandlung der Gelenk-tuberkulose (of joints). Gebele and Ebermayer.
80 Protection for Body Linen in Gonorrhea.—Ein neuer Wäscheschutz bei Gonorrhoe. C. Philip.
81 Ueber traumatische Pupillen-Starre (immobility). S. Kreusfuchs and G. Dreyfus.
82 Die Stellung des Alveolar-Echinokokkus. A. Posselt (Concluded).
83 Life and Medical Lore of Natives of India.—Einiges ueber das Alltagsleben und die Volksmedizin unter den Bauern Brittischostindiens. W. D. Sutherland (Concluded).
84 *Lifting Appliance for Bandaging Trunk.—Stangenlager. J. Hahn.
85 (No. 14.) *Treatment of Acute Inflammations with Stasis Hyperemia.—Zur Behandlung akuter Entzündungen mittelst Stauungshyperämie. E. Lexer. 14. B. Bestelmeyer.
86 *Lumbal-Anästhesie im Morphium-Skopolamin Dämmerschlaf. M. Penkert.
87 Firearm Wounds of Joints.—Erfahrungen über Gelenkschüsse aus dem russisch-japanischen Kriege. A. Brentano.
88 Roentgen Ray Work in War.—Die kriegschirurgische Bedeutung und die Art seiner Verwendung im Kriege. F. Colmers.
89 Action of Light on Ferments in Absence of Oxygen. Wirkung des Lichtes auf Fermente (Invertin) bei Sauerstoffabwesenheit. A. Jodlbauer and H. v. Tappeiner.
90 Loss of Extension Aponeurosis.—Abriss der Streckaponeurose der Finger (distalen Phalanx). F. Seiberg.
91 Wolfsrachen und perorale Tubage (cleft palate). F. Kuhn.
92 Automatic Suction Syringe.—Die automatische Saug- und Druckspritze als Saug-Apparat für Biersche Stauungshyperämie. A. Strauss.
93 *School and Corset.—Schule und Korsett. F. Lange (Munich).

78. **Arteriosclerosis in Surgery.**—Siegel's experience with chloroform anesthesia in cases of pronounced arteriosclerosis has been very favorable. A history of attacks of angina pectoris did not add to the gravity of the general anesthesia. Apoplectic symptoms have been observed in arteriosclerotic subjects under the influence of chloroform, but they are extremely rare, and he ascribes them more to the excitement than to the arteriosclerosis. Even patients with myocarditic changes in the myocardium tolerate the chloroform well, provided the heart affection is well compensated, the kidneys still acting well, and that there is no bronchitis or emphysema. The combination of arteriosclerosis with emphysema and bronchitis renders the prognosis much graver. Chloroform has been recommended as a remedy for angina pectoris and many persons in the eighties operated on now and then for incarcerated hernia or the like, bear the chloroform almost always very well. On the other hand, arteriosclerosis in younger patients is liable to produce some very disastrous surprises. Examination of the heart and kidneys reveals nothing abnormal, but there is liable to be serious collapse under the influence of the anesthetic, and the rigid, tortuous course of the peripheral arteries is then noticed. The patients are usually revived in these cases, but he has encountered instances in which the patient succumbed to heart failure six or seven hours later. He is of the impression that an arteriosclerotic individual bears better a deep than a superficial anesthesia. The persisting reflexes may affect the heart injuriously. Such persons tolerate the anesthesia better than the pain. Aseptic surgical incisions and amputations heal surprisingly well in arteriosclerotics, but complications are almost inevitable in operations on the intestines, especially resections. Inflammatory processes in the intestines frequently entail congestion in the intestinal wall, with friability of the tissues, especially in younger subjects. Even in an "interval" appendicectomy the ligatures are liable to tear out. There is also a special tendency in the arteriosclerotic to afterhemorrhages, especially in tissues after Schleich infiltration anesthesia. He discusses aneurisms and diabetes in relation to arteriosclerosis, and reaffirms that arteriosclerosis is one of the most frequent causes of pancreatic affections. This is particularly true of apoplexy of the pancreas. Hemorrhagic intestinal catarrh in elderly people is probably due to the altered condition of their blood vessels. He adds, in conclusion, that there are a number of affections which masquerade as appendicitis or gallstone trouble or acute or chronically intermittent stenosis of the intestines, which in reality are only the consequences of sclerosis of the mesenteric vessels.

84. **The Rod Bed.**—Hahn illustrates a contrivance to facilitate the application of large bandages to the trunk. An iron vertical standard on each side of the bed has a row of holes large enough to admit an iron rod about the size and shape of a lathe. When the trunk is to be lifted, this rod is pushed across the bed; it readily passes under the sacral region. The rod is then raised to fit in the holes of the two standards on each side of the bed, thus lifting up the pelvic region until the bandage can be easily passed around the trunk. A second rod and set of standards may be used to raise the shoulders also. The rods can be padded. This contrivance has given great satisfaction in his clinic during the last six or seven years, and is in daily use.

85. **Stasis Hyperemia.**—Lexer has been studying the various phases and features of Bier's method of artificially induced hyperemia and its effects. His conclusions are that it is beneficial in mild cases of acute inflammation, but that in the severer cases the conditions are aggravated by it unless it is preceded by ample incision and evacuation of the lesion. The liberation of large amounts of endotoxins from the bacteriolysis in the hyperemic area is directly injurious unless they are allowed to escape freely by large and early incisions. The accumulation of antitoxic bodies is not materially important, but the increase of the proteolytic ferments in the area involved has a decidedly favorable action in case of infected wounds. The increased transudation or exudation is liable to spread the toxins into hitherto intact areas unless it is allowed free escape; in this case it is beneficial by mechanically sweeping away the infectious substances. Dubious cases should be regarded as severe and should be treated by early and ample incisions. Suction treatment is applied in mild, incipient inflammations of the fingers and in case of older, already softened infiltrates and furuncles. Bestelmeyer discusses the experiences at von Angerer's clinic in this line, with about 200 cases of acute inflammatory processes. They demonstrate that "stasis hyperemia" is an effectual measure for the cure of acute inflammatory processes, but that it has its limitations. The deeper the lesion the less effectual this method of treatment. The results were actually bad in bone affections, and they were uncertain in some cases of tendon sheath phlegmon and in joint suppurations. On the other hand, the results were extremely favorable when the circumscribed suppuration was close to the skin. The advantages of the new procedure are that it is much pleasanter for the patient, that the cicatrix is comparatively small, and that tamponing is done away with. It has been conclusively demonstrated that the delicate tissues of joints and tendons suffer from tamponing and drying out. Another advantage of Bier's technic is that active and passive movements can be begun early. An important factor in the results is the intelligent co-operation of the patient. When this can not be counted on the application of the technic meets with great difficulties. It also requires considerable time for the daily applications. A further disadvantage is that asepsis can not be so complete as by other measures.

86. **Spinal Anesthesia Preceded by Morphin-Scopolamin.**—Penkert writes from Krönig's clinic to relate the good results obtained with spinal anesthesia applied when the patient was under the influence of scopolamin and morphin. The drowsiness thus induced obviated the dread and excitement which frequently interfere with the success of spinal analgesia. In 140 cases there was vomiting in only four after the combined anesthesias, and in these cases it was extremely mild and there was no remembrance of the operation. The patients did not look as if they had undergone a severe operation, but seemed fresh and were free from any tendency to bronchitis. The scopolamin has a drying effect on the mucosa of the upper air passages, and reduces the secretions. The combination has proved very useful in a number of laparotomies, and also for cystoscopy in inflammatory conditions, and in obstetrics. From two and a half to three hours before the operation an injection of 0.01 gm. morphin and 0.0003 gm. scopolamin is given, repeated in an hour, and the patient becomes drowsy. The preparation and disinfection are done the day before, and when the drowsiness is observed the patient is put to bed in the anesthetic room, protected from noise and bright light. The ears are plugged also to keep out all noise. After thorough disinfection of the lower part of the back the patient is made to sit up and the lumbar puncture is made, the cerebrospinal fluid flowing into the syringe attached to the puncture needle, where it mixes with the anesthetic and is then rein-

jected. In 25 cases the uterus was removed by the vaginal route under this technic, and in 69 others various major gynecologic operations were done through the abdomen. Headache was observed in 13 cases, but in 9 it had existed prior to the intervention. In 2 cases slight transient deafness was observed, and very slight vomiting in 4. The main advantage of the technic, however, is the absence of any tendency to aggravation of a bronchial trouble or to postoperative bronchial or pulmonary complications.

93. **Schoolgirls and Corsets.**—Lange does not approve of bearing all the weight of the clothes on the shoulders, and he thinks that growing girls need some kind of a support for their back. He thinks that he has realized the desired results with a short corset suspended loosely from the shoulders, cut out below the bust and curving upward in front so as to leave the stomach region free. The principle is the same as in men's clothing. The ends of the corset waist cross in the back and button at the sides, and the skirts button to the corset. The stockings are held up by a separate loose belt, bringing the weight on the trochanter, the posterior superior spine, and the symphysis, with the straps on the front of the thigh.

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94 (XXII, No. 9.) Fonacoscopio e fonacoscopia. M. Landolfi and R. Papale (Naples).
95 *Studio dell' erisipela. C. V. Pich.
96 (No. 10.) *Sulla febbre sifilitica terziaria (fever). L. D'Amato.
97 (No. 11.) *Sulla fine localizzazione del mercurio nell' organismo. A. Conti an P. F. Zuccola. (Commenced in No. 9.)
98 (No. 12.) *Sulla diagnosis dei tumori intracranici giunti allo stadio terminale. A. Murri. (Commenced in No. 11.)
99 Fatty Degeneration in Infected Liver.—Degenerazione grassa nel fegato infettivo. P. Bueri.
100 *I piu recenti metodi per la diagnosi del cancro dello stomaco e ricerche sulla reazione biologica. A. Santini.

95. **Erysipelas of the Lungs.**—Pich describes a case of erysipelas in which the affection spread rapidly from the outer ear through the nose and ear to the meninges, terminating with acute edema of the lungs from paralysis of the left ventricle. A second case commenced with the same severity, but the symptoms suggested pneumonia, severe local pain in one lung, mucopurulent sputum and dullness. The local pain passed abruptly over to the other lung the next day, with high fever; the third day all the pulmonary symptoms suddenly vanished for three days and then returned as severe as ever. Again they vanished after two days, but soon returned again and lasted for five days, with high fever, when they vanished completely. The Fehleisen micrococcus of erysipelas was cultivated from the sputum, but no traces of erysipelas could be detected on the skin or mucosa anywhere. The case was diagnosed as a migrating erysipelatous inflammation of the lung. Treatment consisted in alcohol, digitalis, and injections of 2 per thousand solution of carbolic acid. This primary invasion of the lungs enforces Bouchut's warning that persons in contact with a case of erysipelas are liable to contract inflammatory affections, a sore throat, pneumonia, or something of the kind.

96. **Tertiary Syphilitic Fever.**—D'Amato relates the history of 3 syphilitic patients who exhibited temperature several degrees above normal, rebellious to quinin, but soon yielding to mercurial treatment. His experience shows that this syphilitic fever is liable to appear in the early stage of the secondary phase and to recur again later, during the tertiary phase, possibly as late as fourteen or sixteen years after the infection. The fever in the tertiary phase may be intermittent or continuous-remittent, or it may change its type in the same patient. It may continue for several years, during both the secondary and the tertiary phases, and may be accompanied by visceral manifestations, especially in the liver, but it does not seem to be dependent on these lesions and may occur without them. The fever may subside spontaneously, but in such cases it shows a tendency to recur. When it subsides as the result of specific treatment it falls by lysis.

97. **Localization of Mercury in the System.**—Conti and Zuccola epitomize their clinical and experimental researches in the statement that the white corpuscles take up the mercury, by whatever route it is incorporated, and transport it to various organs, but principally to the liver, intestines and kidneys. The liver seems to store it up while the intestines and kidneys eliminate it. It is not found in the glands and other organs except inconstantly, and only when there is oversaturation of the system with it. It it always found by preference in the nucleus of the cell.

98. **Endocranial Tumors.**—Murri concludes this clinical lecture and report of the autopsy findings in a number of cases with the remark that in dubious cases of endocranial tumors the surgeon must not hesitate to open the skull extensively at need. Even repeated exploratory operations, he states, are justified.

100. **Diagnosis of Cancer of the Stomach.**—Santini relates the results of two years of special research on the diagnosis of cancer of the stomach. He found that the biologic precipitation test of the stomach contents gave encouraging results, but needs further study. The best results were obtained with a prepared serum from rabbits and guinea-pigs, inoculated with fluids taken directly from the cancers, either cancerous gastric juice, or fluid from an accessible cancer, as in the rectum. Still better results might be obtained, he believes, with cancer material sterilized with chloroform.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

SCIENTIFIC MEMOIRS BY OFFICERS OF THE MEDICAL AND SANITARY DEPARTMENTS OF THE GOVERNMENT OF INDIA. Issued Under the Authority of the Government of India by the Sanitary Commissioner with the Government of India, Simla. Calcutta: Office of the Superintendent of Government Printing, India, 1906. No. 22. Anatomy and Histology of Ticks. By S. R. Christophers, M.B., I. M. S. Price, Rs. 3, or 4s. 6d.

GOLDEN RULES OF SURGERY, Aphorisms, Observations and Reflections on the Science and Art of Surgery. Being a Guide for Surgeons and Those Who Would Become Surgeons. By A. C. Bernays, A.M., M.D., Life Member of the German Society for Surgery of Berlin, Chief Surgeon Lutheran Hospital, etc. Cloth. Pp. 232. Price, $2.50. St. Louis: The C. V. Mosby Medical Book Co., 1906.

PROBLEMS IN ANIMAL METABOLISM. A Course of Lectures Given in the Physiological Laboratory of the London University at South Kensington in the Summer Term, 1904. By J. B. Leathes. Lecturer on Physiology in the Medical School of St. Thomas's Hospital. Cloth. Pp. 205. Price, $2.00. Philadelphia: P. Blakiston's Son & Co., 1906.

SURGICAL SUGGESTIONS. Practical Brevities in Diagnosis and Treatment. By W. M. Brickner, M.D., Chief of Surgical Department, Mount Sinai Hospital Dispensary, etc., and E. Moschcowitz, M.D., Assistant Physician, Mount Sinai Hospital Dispensary, etc. Cloth. Pp. 80. Price, 50c. New York: Surgery Publishing Company, 1906.

PRINCIPIA THERAPEUTICA. By H. Sainsbury, M.D., F.R.C.P., Fellow of the Physiological Society, Physician to the Royal Free Hospital and to the City of London Hospital for Diseases of the Chest, Victoria Park. Cloth. Pp. 244. Price 7s. 6p. net. London: Methuen & Co.

DAS EINZIGE KIND UND SEINE ERZIEHUNG. Ein ernstes Mahnwort an Eltern und Erzieher. von Dr. med. Eugen Neter, Kinderarzt in Mannheim. Mit einem Vorwort von Prof. Dr. Adolf Baginsky. Paper. Pp. 50. Munich: Verlag der Aerztlichen Rundschau, 1906.

DIE BLINDDARMENTZÜNDUNG. Ihre Entstehung, Verhütung und Behandlung nach neueren Gesichtspunkten. By Dr. Max Meyer, Gerichtsarzt.—Arzt zu Bernstadt in Sachsen. Paper. Pp. 28. Price, mk. 1.20. Munich: Verlag der Aerztlichen Rundschau, 1906.

HAARSCHWUND UND GLATZE. Ihre Verhutung und Behandlung. By Dr. M. Meyer, Gerichtsarzt.—Arzt zu Bernstadt in Sachsen. 3.—4 Auflage. Paper. Pp. 48. Price, mk. 1.20. Munich: Verlag der Aerztlichen Rundschau, 1906.

CHIMIE PASTORIENNE. L' Action Diastasique Dans les Fermentations Industrielles. By Emile Diederich, Licencie es Sciences. Avec 12 figures Intercalees dans le texte. Paper. Pp. 181. Price, 4 fr. Paris: Jules Rousset, 1906.

YELLOW FEVER PROPHYLAXIS IN NEW ORLEANS, 1905. By R. Boyce, M.B., F.R.S., Liverpool School of Tropical Medicine—Memoir XIX. April, 1906. Paper. Pp. 62. Price, 5s. net. London: Williams & Norgate.

TRANSACTIONS OF THE WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Fifteenth Annual Meeting, held at Kansas City, Mo., December, 1905. Cloth. Pp. 450. Minneapolis: Press of the Journal-Lancet, 1906.

LA MEDICATION IODIQUE. Etude comparative de ses diverses formes et de leurs indications respectives. By J. Noe. Paper. Pp. 47. Price, 1 fr. 50. Paris: Jules Rousset, 1906.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Reprints. Vol. V. 1906. Paper. New York: The Rockefeller Institute for Medical Research.